

THE CANADIAN GREAT LAKES BASIN

INTAKE OUTFALL ATLAS

(8 Volume Set)

Volume 5

AUGUST 1990

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MOE



Ontario

Environment
Environnement

Jim Bradley, Minister/ministre

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CANADIAN GREAT LAKES BASIN

INTAKE - OUTFALL ATLAS

VOLUME 5

LAKE ERIE

by
Kleinfeldt Consultants Limited
AUGUST 1990

M. Griffiths (ed)

Water Resources Branch
ONTARIO MINISTRY OF THE ENVIRONMENT

1990, Her Majesty the Queen in Right of Ontario

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CANADIAN GREAT LAKES BASIN INTAKE/OUTFALL ATLAS

GUIDE TO USE

INTRODUCTION

The Canadian Great Lakes Basin Intake/Outfall Atlas will be used by various public organizations as well as private concerns for water quality assessment studies, pollution control plans, investigation of bacterial pollution problems at bathing beaches and in the formulation of long range management strategies.

The Canadian Great Lakes Basin, Intake Outfall Atlas is composed of eight separate volumes as listed below:

- Volume 1 - Lake Superior
- Volume 2 - St. Marys River
- Volume 3 - Lake Huron/Georgian Bay
- Volume 4 - St. Clair River/Lake St. Clair/
Detroit River
- Volume 5 - Lake Erie
- Volume 6 - Niagara River/Welland Canal/Welland River
- Volume 7 - Lake Ontario
- Volume 8 - St. Lawrence River

For the purposes of this project, questionnaires were sent to appropriate individuals at public and private intake and outfall facilities. Facilities may fall into any one of the industrial categories, or it can be a municipally or provincially operated Water Treatment Plant (WTP) or a Sewage Treatment Plant (STP). Municipalities were also contacted for information regarding various outfalls such as storm, combined, and sanitary sewers that discharge to the Great Lakes System or tributary stream. The bulk of the data were received by Kleinfeldt between December 1986 and June 1987.

A list of Ontario municipal, provincial and private industrial operations was developed using several sources including: IMIS and UMIS listings, from the Water and Wastewater Management Section, Regional Abatement and Utility Officers, Reports from the International Joint Commission, earlier versions of this Atlas, reports and discussions with various individuals. In order to be included in this Atlas identified operations must either discharge effluent (including cooling water and stormwater) to the Canadian Great Lakes or draw water from the the system. These operations must be located within 2 kilometres of the Great Lakes System shoreline. The Great Lakes System includes all Great Lakes within Canadian boundaries as well as the major Interconnecting Channels.

A report summarizing discharging operations and receiving water bodies has been prepared and submitted, under separate cover, to the Great Lakes Section.

USING THE ATLAS

I General Layout

The Atlas begins with Volume 1 representing Lake Superior and ends with Volume 8, representing the St. Lawrence River, thus following a general west to east flow. Mapping of the Great Lakes shoreline is accomplished by using continuous and overlapping hydrographic charts and topographic maps.

Each map contains a legend of symbols for quick reference, an orientation arrow indicating the north direction and a bar scale. When working with each map, check the scale as it may vary between maps.

II Legends

Legends provided on each map are self-explanatory. In the case of shore based effluent pipes, including sewer system outfalls, the arrowhead indicating outfall location is on the land side of shoreline. Similarly shore based intakes have their location indicators on the water side of the shoreline. Thus, location indicators also illustrate direction of flow through any given pipe. In some situations, because of pipe length and available map scale, offshore effluent and water intake pipes have been illustrated as shore based, however, consultation with the facing data page will give exact data on length of pipe from shore.

III Maps

Each map is numbered and is accompanied by a data page. Information on industrial, provincial or municipal intake or outfall structures within a map's borders is detailed on the data page. All intakes and outfalls, (excluding sewer system outfalls) have a numerical designation located as close to the actual structure as possible. These numerical designations begin at one (1) for each map, and relate to the "Structure Number" category on each data page. Although limited to descriptions of seven (7) structures per page there can be more than one data page relating to a simple map.

IV General

If a particular structure appears in the area of overlap between two maps the structure will be presented on one map only. However, where there is map duplication (i.e. between volumes) the structures will be mapped and data presented in both volumes.

Water and sewage treatment operations are listed by plant name. The Atlas user should refer to the location category in the data tables for identification of plant location. The abbreviations WPCP and STP describe sewage treatment operations and are assigned to an operation based on MOE designations.

V Lists of Operations:

In order to assist the user in locating the required information on a particular operation, we recommend that the user begin with our lists given below. Please note, these lists do not include municipal jurisdictions that provided sewer/drainage system information only.

Table 1: Listing of all operations that have major intake/outfall structures mapped and tabulated in the Atlas. Does not include municipal sewer/drainage outfalls.

Table 2: Listing of all operations within a given volume and a corresponding index.

Table 3: Listing of industrial operations not responding to the questionnaire (Information was subsequently supplied by the MOE).

VI Abbreviations:

Before using the Atlas it is recommended the user be familiar with the abbreviations presented in Table 4.

VII Explanation of Data Tables:

Table 5 provides a brief explanation of each information category to improve the clarity for the user.

Acknowledgments

The Canadian Great Lakes Basin Intake/Outfall Atlas was compiled by Kleinfeldt Consultants Limited, and with the assistance of the Great Lakes Section of the Ontario Ministry of the Environment's Water Resources Branch.

Kleinfeldt Consultants wishes to thank Mrs. Marta Griffiths of the MOE's Great Lakes Section for her time and patience exhibited throughout the course of this project.

We also acknowledge the efforts of Ministry of the Environment personnel, in the Great Lakes Section, as well as, Regional and District Offices who took the time and made the effort to review the data and maps contained in the Atlas, and provided comments, suggestions and additional information. Their efforts have allowed us to improve the document and hence the overall utility of the Atlas.

Kleinfeldt Consultants would also like to take this opportunity to thank the individuals in the ministry, local municipality and industry that provided information on 500 plus operations included in this Atlas. Without the cooperation and timely responses from the majority of contacts, this project would not have been a success.

Disclaimer

The information contained in this Atlas is as accurate as the information supplied in the completed and returned questionnaires. Due to the nature of the data collection, Kleinfeldt Consultants Limited is not responsible for erroneous information supplied by any one of the 400 plus operations.

Table 1

ALL OPERATIONS INCLUDED IN THE ATLAS

Lake Superior	St. Marys River	Lake Huron/Georgian Bay	St. Clair System	Lake Erie	Welland Canal/Niagara R.	Lake Ontario	St. Lawrence River
Abitibi Price Inc.	Algoma Steel Corp.	Blind River STP	Amherstburg WPCP	Amherstburg WPCP	Anger Ave. WPCP	Ajax WTP	BCL
Abitibi Price T.Bay Div.	Sault. Ste. Marie WPCP(1)	Brights Grove STP	Amherstburg WSS	Blenheim WSS	Atlas Specialty Steels	Amherstveiw WSS	Brockville WPCP
Canada Malting Co.	Sault. Ste. Marie WPCP(2)	Bruce A NGS	Belle River WPCP	Cen. Haldiman Norfolk WSS	B.F. Goodrich Canada	Bakelite Thermosets	Brockville WTP
Dowtar Packaging Ltd.	Sault. Ste. Marie WTP(1)	Bruce B NGS	Belle River WTP	Crystal Beach WPCP	Canadian Oxy-Chemicals	Baker Road WPCP	Cardinal WPCP
James River-Marathon Ltd.	Sault. Ste. Marie WTP(2)	Bruce Heavy Water Plant	Canadian Liquid Air	Crystal Beach WTP	Casco Company	Bath WPCP	Cardinal WTP
Kimberly Clark Can. Ltd	St. Marys Paper Inc.	Bruce Mines STP	Canadian Salt Co. (1)	Dunville WTP	Cyanamid N. Falls Plant	Bath WTP	Casco Company
Marathon STP	Union Carbide Canada Ltd.	Bruce Mines WTP	Canadian Salt Co. (2)	Elgin Area WSS	Cyanamid Welland Plant	Beamsville WTP	Charlottenburgh TWP. WTP
Nipigon STP		CIL /McDougall TWP	Chinnok Chemical Co.	Erieau Erie Beach WSS	Dowtar Fine Papers	Belleville WPCP	Cornwall WPCP
Nipigon WTP		Collingwood WPCP	CIL Inc. Lampton Works	Harrow Colchester WSS	Electro Minerals(CAN)Inc.	Belleville WTP	Cornwall WTP
Northern Wood Preservers		Collingwood WTP	Corunna WPCP	H. J. Heinz Co.	Fleet Manufacturing Co.	Biggar Lagoon	Courtaulds Ltd.
Pancake Bay Prov. Park		Dowtar Inc. Sifto Salt	Courtright WPCP	Inco Metals Inc.	Ford Motor Co.	Borg-Warner Chemicals	Dowtar Fine Paper
Provincial Paper Division		Douglas Point NGS	Dow Chemical Canada Ltd.	Int. Min. & Chemicals	Fort Erie North Pump Stn.	Bowmanville WTP #1	Dupont Canada
Red Rock WPCP		Eldorado Resources Ltd.	DuPont Canada Inc.	Kent County WSS	Fort Erie South Pump Stn.	Bowmanville WTP #2	Edwardsburg WPCP
Red Rock WTP		Goderich WPCP	Edgewater Beach WPCP	Leamington WPCP	General Motors of Can.Ltd	Brighton STP	Gananoque Lagoon
Rosspoint WTP		Goderich WTP	Esso Petroleum Canada	Nanticoke TGS	Hayes Dana Dr. Train Div.	Burlington WTP	Gananoque WTP
Schreiber STP		Goodyear Canada Inc.	Ethyl Canada Inc.	Oxstead Foods Ltd.	Holiday Farms	Canada Cement Lafarge Ltd	Iroquois STP
Schreiber WTP		Goodyear Canada Inc.	Fiberglass Canada Inc.	Port Burwell WPCP	Inco Metals Ltd.	Canada Malting Co. Ltd.	Iroquois WTP
Thunder Bay TGS		Gore Bay WPCP	Ford Motor Co. of Can.Ltd	Port Dover WPCP	Kimberly Clark Of Canada	Canadian Vegetable Oil	Kingston (City) WPCP
Thunder Bay WPCP		Gore Bay WTP	General Chemical	Port Dover WTP	Niagara Falls WTP	Canron Inc.	Kraft Foods Ltd.
Thunder Bay WTP		Grand Bend STP	General Motors of Canada	Port Rowan WPCP	Niagara-on-the-Lake STP	Celanese Canada Inc.	Long Sault WPCP
		Kilbear Provincial Park	Hiram Walker & Sons Ltd	Port Rowan WTP	Niagara-on-the-Lake WTP	CFB Mountainview WTP	Long Sault WTP
		Kincardine WPCP	J. C. Keath TGS	Port Stanley WTP	Norton Co.	CFB Trenton WPCP	Marimac Inc.
		Kincardine WTP	Lampton County WSS	Port Stanley STP	Ontario Paper Co.	Chrysler Canada Ltd.	Morrisburg WPCP
		Lake Huron WSS	Lampton TGS	Ralieggh TWP STP	Ontario Power Co.	Clarkson WPCP	Morrisburg WTP
		Lions Head WTP	Little River WPCP	Rock Pt. Provincial Park	Port Weller WPCP	Cobourg STP #1	Nitrochem Inc.
		Little Current WTP	Mitchells Bay WPCP	Romey WPCP	Seaway WPCP	Cobourg STP #2	Osnabruck TWP WPCP
		McGregor Point Prov. Park	Mitchells Bay WTP	Rosehill WTP	Sir Adam Beck #1 HGS	Cobourg WTP	Osnabruck TWP WTP
		Meaford WPCP	Novacor Chemicals	Selkirk Provincial Pk.	Sir Adam Beck #2 HGS	Corbett Creek WPCP	Phillips Cables
		Meaford WTP	Petrosar Corunna	Stelco Inc. Erie Works	Stampford/Niagra STP	Darlington NGS	Prescott WTP
		Midland WPCP	Point Edward WPCP	Texaco Canada Inc.	Stelco Inc. Page Hersey	Deseronto WPCP	Richmond Die Casting Ltd.
		Mitsubishi Electronics	Polysar Ltd.	Turkey Pt. Provincial Pk.	Stelco Inc. Welland Tube	Deseronto WTP	River St. Pumping St
		Owen Sound WPCP	Port Lampton WPCP	Union Gas Ltd.	Stevensville Lagoon	Dofasco Inc.	Rohm & Hass Canada Inc.
		Owen Sound WTP	Sarnia WPCP	Union WSS	Union Carbide Canada Ltd.	Dowtar Packaging	
		Parry Sound WTP	Shell Canada Ltd.	West Lorne WTP	Welland WPCP	Dowtar Wood Preserving	
		Penetanguishene WPCP	Sombra WPCP	Wheatly WTP	Welland WSS	Duffins Creek WPCP	
		Penetang. Hospital STP	Stoney Point WPCP			DuPont Canada Ltd.	
		Petrolia WTP	Sunoco Inc.			Easterly Filtration Plant	
		Port Elgin WTP	The Segrav Co. Ltd.		West Side WPCP	Eldorado Resource Ltd.(1)	
		Port McNicoll STP	Tilbury North WSS			Eldorado Resource Ltd.(2)	
		Port McNicoll WTP	Tilbury WTP			Eldorado Resource Ltd.(3)	
		Rio Algom Ltd.	Wallaceburg WPCP			Elizabeth Gardens PS	
		Southampton WPCP	Wickes Bumper Co. Ltd.			E.D. Smith Limited	
		Southampton WTP	Windsor PUC WTP			Ford Motor Co. of Can.Ltd	
		Standard Aggregates Inc.	Windsor Tecumseh WTP			General Motors of Canada	
		Thessalon Pump House	Windsor WPCP			Goodyear Canada	
		Thessalon STP				Graham Creek WPCP	
		Thornbury WPCP				Griesby WTP	
		Thornbury WTP				Hamilton Wentworth WPCP	

ALL OPERATIONS INCLUDED IN THE ATLAS

[illegible]

Table 1

ALL OPERATIONS INCLUDED IN THE ATLAS

Lake Superior	St. Marys River	Lake Huron/Georgian Bay	St. Clair System	Lake Erie	Welland Canal/Niagara R.	Lake Ontario	St. Lawrence River
						South East WPCP	
						South West WPCP	
						Stelco Inc Parkdale Works	
						Stelco Inc.	
						St. Lawrence Cement	
						St. Lawrence Starch Co.	
						St. Marys Cement Co.	
						Texaco Canada Inc. (1)	
						Texaco Canada Inc. (2)	
						Trenton WPCP	
						Trenton WTP	
						TWP of Etobicoke STP	
						Union Carbide Can. Ltd.	
						Victory Soya Mills	
						Vineland WTP	
						Waupoos Canning Co. Ltd.	
						Wellington Mushroom Farm	
						Wellington WPCP	
						Whitby WTP	

Table 2

OPERATIONS INCLUDED IN VOLUME 5
LAKE ERIE

Operation	Page Number

Amherstburg WPCP	1
Blenheim WSS	16
Cen. Haldiman Norfolk WSS	49
Crystal Beach WPCP	60
Crystal Beach WTP	60
Dunvillie WTP	54
Elgin Area WSS	31
Erieau Erie Beach WSS	17
Harrow Colchester WSS	4
H. J. Heinz Co.	7
Inco Metals Inc.	58
Int. Min. & Chemicals	54
Kent County WSS	17
Leamington WPCP	7
Nanticoke TGS	49
Omstead Foods Ltd.	11
Port Burwell WPCP	35
Port Dover WPCP	48
Port Dover WTP	48
Port Rowan WPCP	44
Port Rowan WTP	44
Port Stanley STP	30
Port Stanley WTP	30
Ralieggh TWP STP	16
Rock Pt. Provincial Park	55
Romney WPCP	11
Rosehill WTP	61
Selkirk Provencial Pk.	51
Stelco Inc. Erie Works	49
Texaco Canada Inc.	49
Turkey Pt. Provincial Pk.	46
Union Gas Ltd.	14
Union WSS	6
West Lorne WTP	25
Wheatly WTP	11

Table 3
INDUSTRY NOT RESPONDING TO QUESTIONNAIRE
INFORMATION OBTAINED FROM MOE

Name of Operation	Location	Comments

Arrowhead Metals	Toronto	No applicable intake or outfall structures
BCL	Cornwall	From Southeast Regional Office
Courtaulds	Cornwall	From Southeast Regional Office
Domtar Construction Materials	Thorold	From Welland District Office
Domtar Wood Preservers	Trenton	From Southeast Regional Office
Du Pont	Corunna	From Southwest Regional Office
Du Pont	Kingston	From Southeast Regional Office
Du Pont	Whitby	No applicable intake or outfall structures
Du Pont	Maitland	From Southeast Regional Office
Esco Ltd.	Whitby	No applicable intake or outfall structures
Fittings Ltd.	Whitby	No applicable intake or outfall structures
Ford Motor Co. of Canada	Essex Engine Plant	No applicable intake or outfall structures
Ford Motor Co. of Canada	Windsor Engine Plant	From Southwest Regional Office
General Chemicals	Sombra	From Southwest Regional Office
Holiday Farms	Niagara Falls	From Welland District Office
Kraft Ltd.	Williamstown	No applicable intake or outfall structures
Kraft Ltd.	Wolfe Island	No applicable intake or outfall structures
Kraft Ltd.	Ingleside	From Southeast Regional Office

Table 4

LIST OF ABBREVIATIONS

CEN	Central	
CFB	Canadian Forces Base	
CSO	Combined Sewer Overflow	
DND	Department of National Defence	
EO	Emergency Overflow	
IND	Industrial Operation	
MGS	Ministry of Government Services	
MNR	Ministry of Natural Resources	
MOE	Ministry of the Environment	
MUN	Municipal Operation	
NA	Not Available	
NGS	Nuclear Generating Station	
P Removal	Phosphorus Removal	
PP	Provincial Park	
PS	Pumping Station	
PUC	Public Utilities Commission	
RM	Regional Municipality	
S	Sanitary Sewer Overflow	
SS	Storm Sewer	
STP	Sewage Treatment Plant (same as WPCP)	
TGS	Thermal Generating Station	
TWP	Township	
UV	Ultra-Violet	
WPCP	Water Pollution Control Plant (same as STP)	
WSS	Water Supply System	
WTP	Water Treatment Plants	

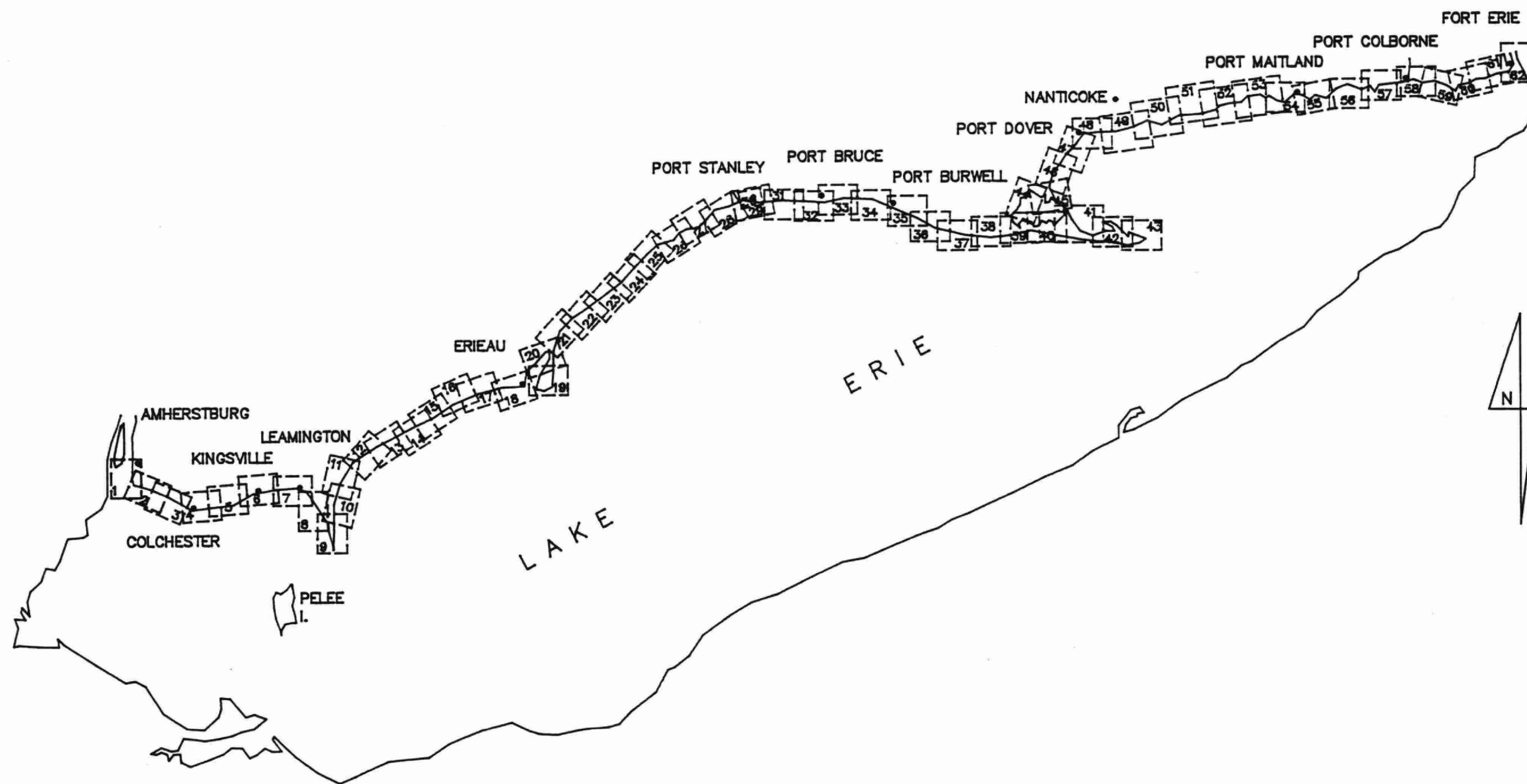
TABLE 5

EXPLANATION OF DATA TABLES

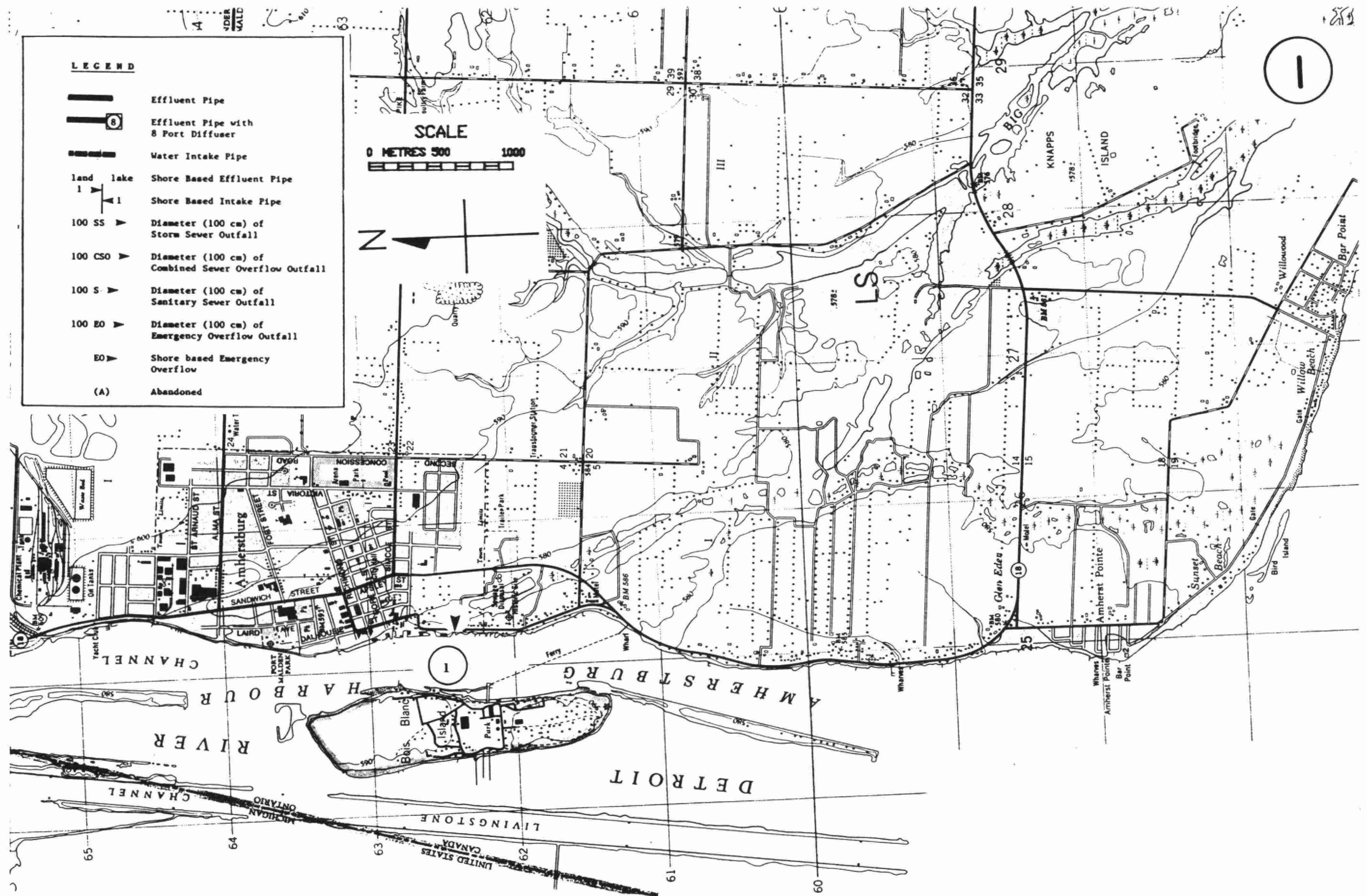
Name of Operation:	Name of municipality or industry
Intake/Outfall:	Indication of Use of pipe
UMIS/IMIS No.:	Number in the Ministry's Utility Monitoring Information System and Industrial Monitoring Information System from which other data can be obtained.
Structure No.:	Indicates structures on the accompanying map.
Map No.:	Indicates map on which the structure can be located.
Operating Authority:	Identifies who owns or has jurisdiction over the facility i.e. Industry, MOE, MNR, MUN, PUC, MGS, etc.
Location:	Identifies where the facility and accompanying structures are located (usually indicated by as City, Town or Township).
Supplier/Receiver:	Identifies the water body that wither supplies water to a facility via the intake, or receives effluent via the outfall.
Point of Discharge:	Applies to outfalls only. Indicates location of discharge i.e. shore (0-99 m from shoreline), offshore ($\geq$ 100m for shoreline), harbour, embayment, river mouth (0-2 km upstream from lake).
Terminal Basin:	Lake or river basin, from which water is drawn or effluent discharged to
Activity:	General categorization of a particular facility (eg. Steel Production, Municipal Water Treatment, etc.)
Process Type:	Description of activity (eg. Major phases of Steel production, Physical and Chemical Treatment, Secondary Treatment, etc.)
Supply/Discharge Type:	Description of how water is drawn in, or effluent discharged (eg. Continuous, Batch Seasonal, etc.)

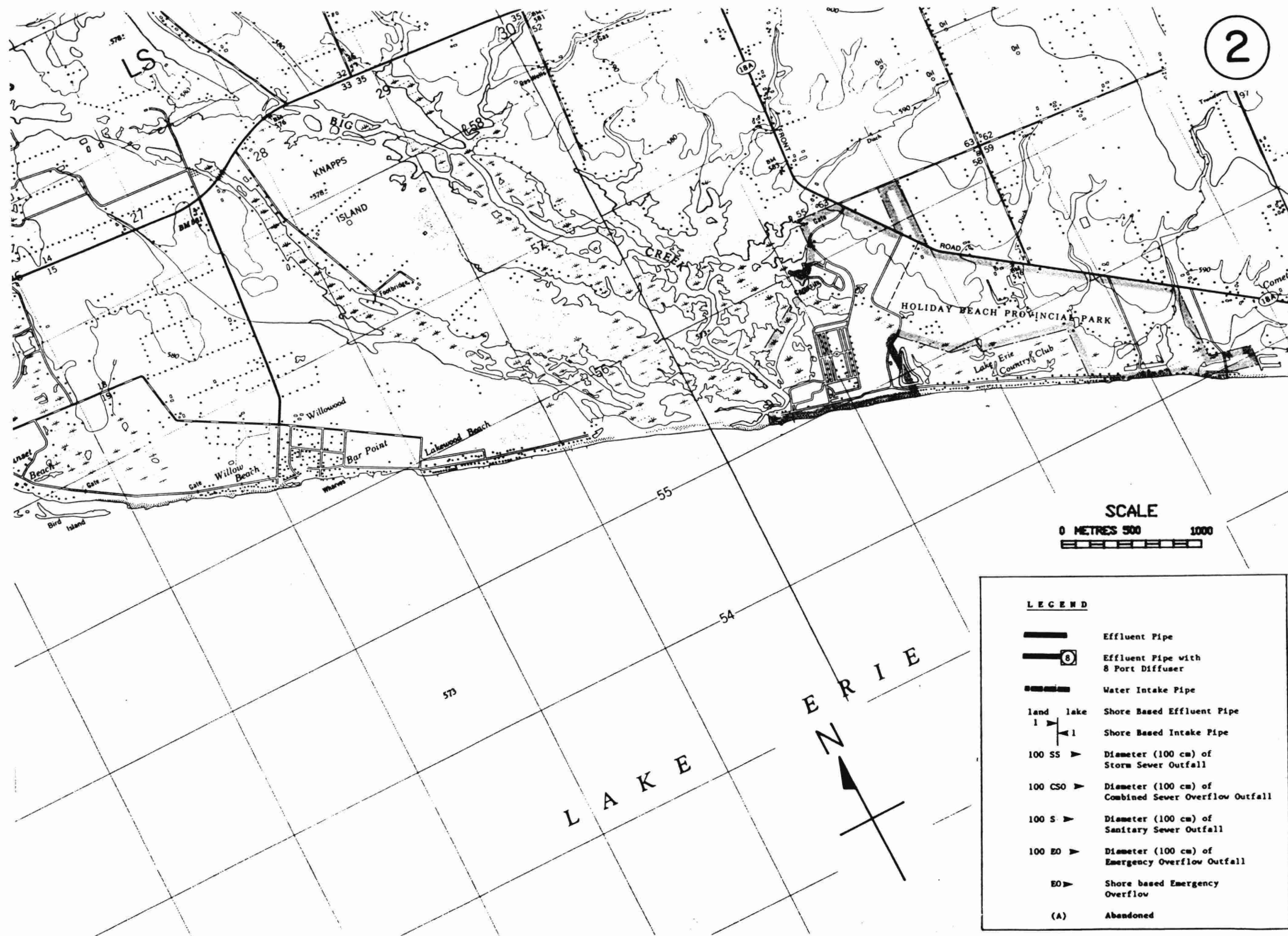
Treatment Type:	Description of how water and/or effluent is treated before use/before discharge. Indication of major steps in treatment, if any.
Comments:	Any other remarks relating to the operation, its intakes or outfalls, process or treatment activities, such as plant closures, future modifications, relationship with nearby operations, etc;
Design Flow:	Quantity (in 1,000 m ³ /day) of water can be drawn in via intake or discharged via outfall according to design specifications.
Mean Annual Flow:	Quantity (in 1,000 m ³ /day) on the average, of water can be drawn in via intake or discharged via outfall according to design specifications.
Pipe Length from Shore:	Length of intake/outfall pipe from shore, given in metres.
Pipe Diameter:	Given in centimeters. If pipe is rectangular or oval in shape, the largest dimension is given.
Water Depth at End of Pipe:	Depth of water, in metres, at the end of the pipe.
Water Depth above End of Pipe:	Depth of water, in metres, above the end of the pipe.
Diffuser:	Applies to outfall structures only. Indicates if an effluent diffusing structure is present on the outfall.
Number of Ports:	If diffuser is present on the outfall an indication is given to the number of ports in the diffusing structure.

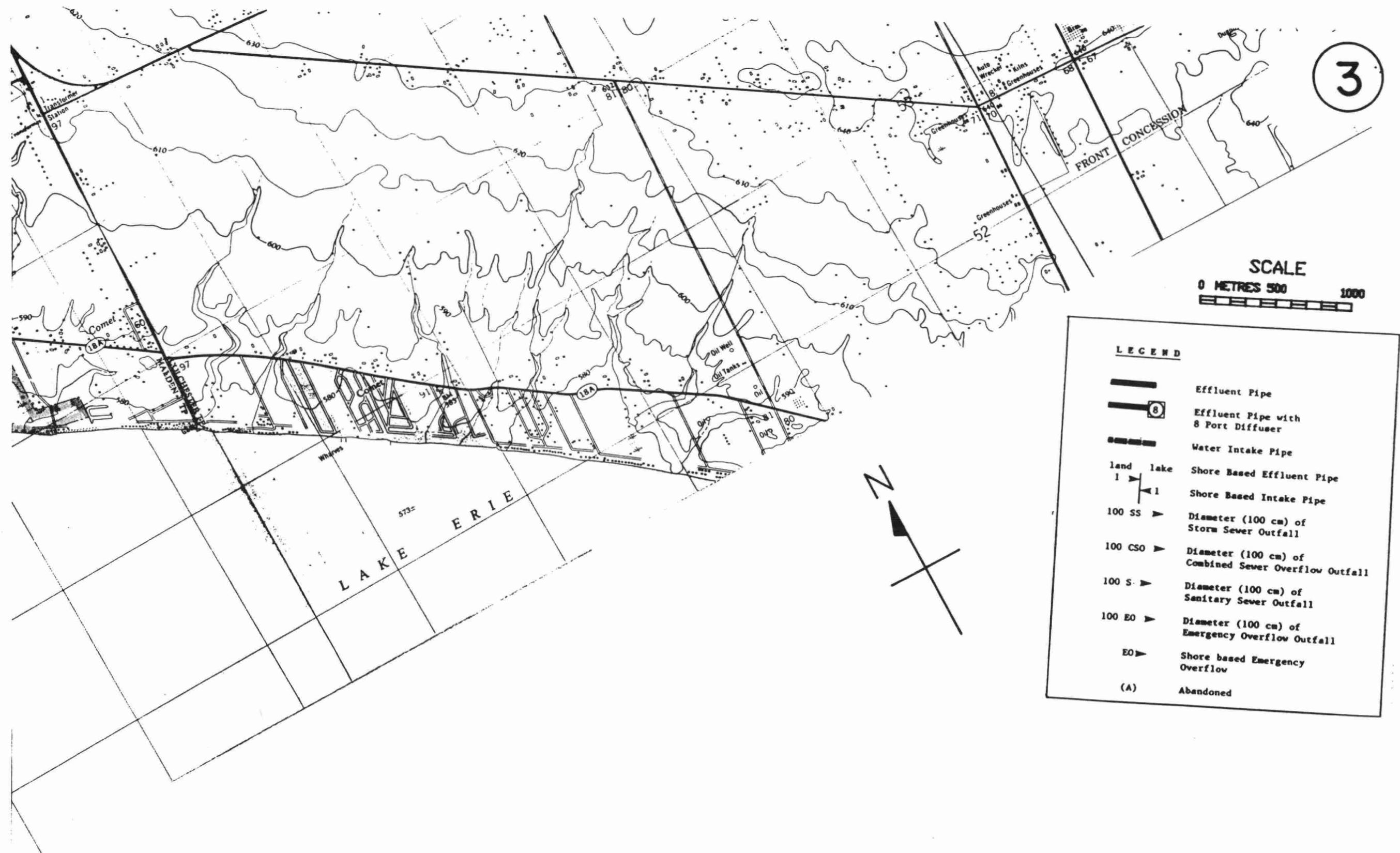
LAKE ERIE KEY PLAN



Name	Amherstburg WPCP						
Intake/Outfall	Outfall						
UMIS/IMIS No.	120001087						
Structure No.	1						
Map Number	1						
Operating Authority	MUN						
Location	Amherstburg						
Supplier/Receiver	Lake Erie/Detroit River						
Point of Discharge	Shore						
Terminal Basin	Lake Erie						
Activity	Municipal Sewage Treatment						
Process Type	Primary Treatment						
Supply/Discharge Type	Continuous						
Treatment Type	Grit Removal, Sedimentation, Ferric Chloride P Removal-Continuous						
Comments	Plant upgrading completed in 1985						
Design Flow (1000m3/day)	7.70						
Mean Annual Flow (1000m3/day)	8.90						
Pipe length from shore (m)	15.00						
Pipe Diameter (cm)	183.00						
Water Depth at end of pipe (m)	3.68						
Water depth above end of pipe (m)	1.83						
Diffuser	NO						
Number of ports							



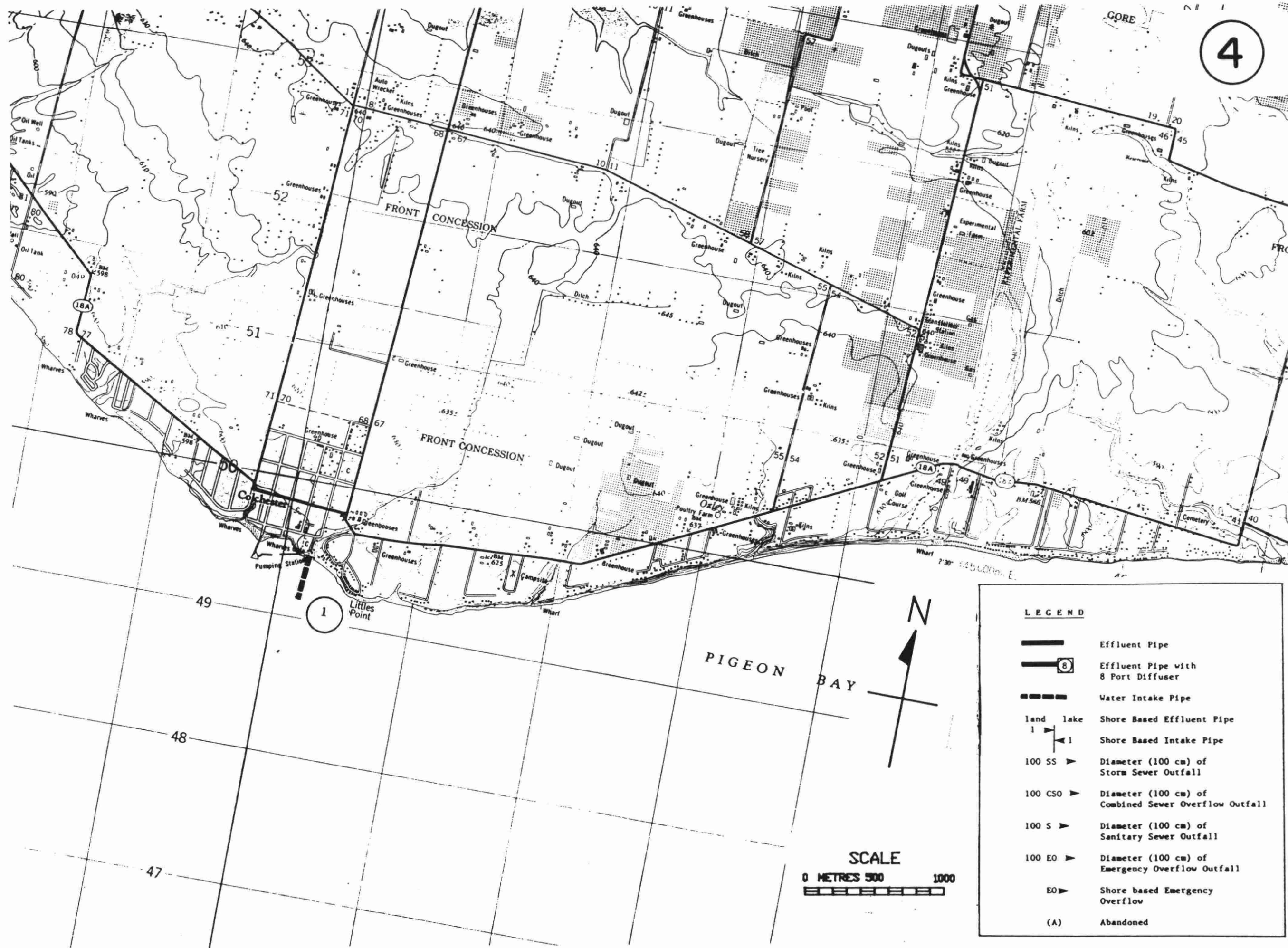




LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  land lake Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  100 SS Diameter (100 cm) of Storm Sewer Outfall
-  100 CSO Diameter (100 cm) of Combined Sewer Overflow Outfall
-  100 S Diameter (100 cm) of Sanitary Sewer Outfall
-  100 EO Diameter (100 cm) of Emergency Overflow Outfall
-  EO Shore based Emergency Overflow
-  (A) Abandoned

Name	Harrow Colchester WSS						
Intake/Outfall	Intake						
UNIS/INIS No.	210000130						
Structure No.	1						
Map Number	4						
Operating Authority	MOE						
Location	Colchester						
Supplier/Receiver	Lake Erie						
Point of Discharge							
Terminal Basin	Lake Erie						
Activity	Municipal Water Treatment						
Process Type	Physical and Chemical Treatment						
Supply/Discharge Type	Continuous						
Treatment Type	Filtration, Coagulation Chlorination						
Comments							
Design Flow (1000m3/day)	10.23						
Mean Annual Flow (1000m3/day)	1.76						
Pipe length from shore (m)	304.80						
Pipe Diameter (cm)	76.20						
Water Depth at end of pipe (m)	6.55						
Water depth above end of pipe (m)	3.78						
Diffuser							
Number of ports							

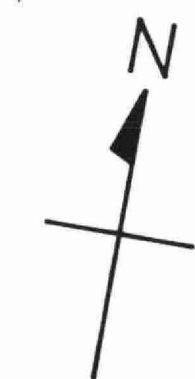


LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS > Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S > Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO > Diameter (100 cm) of Emergency Overflow Outfall
- EO > Shore based Emergency Overflow
- (A) Abandoned

SCALE

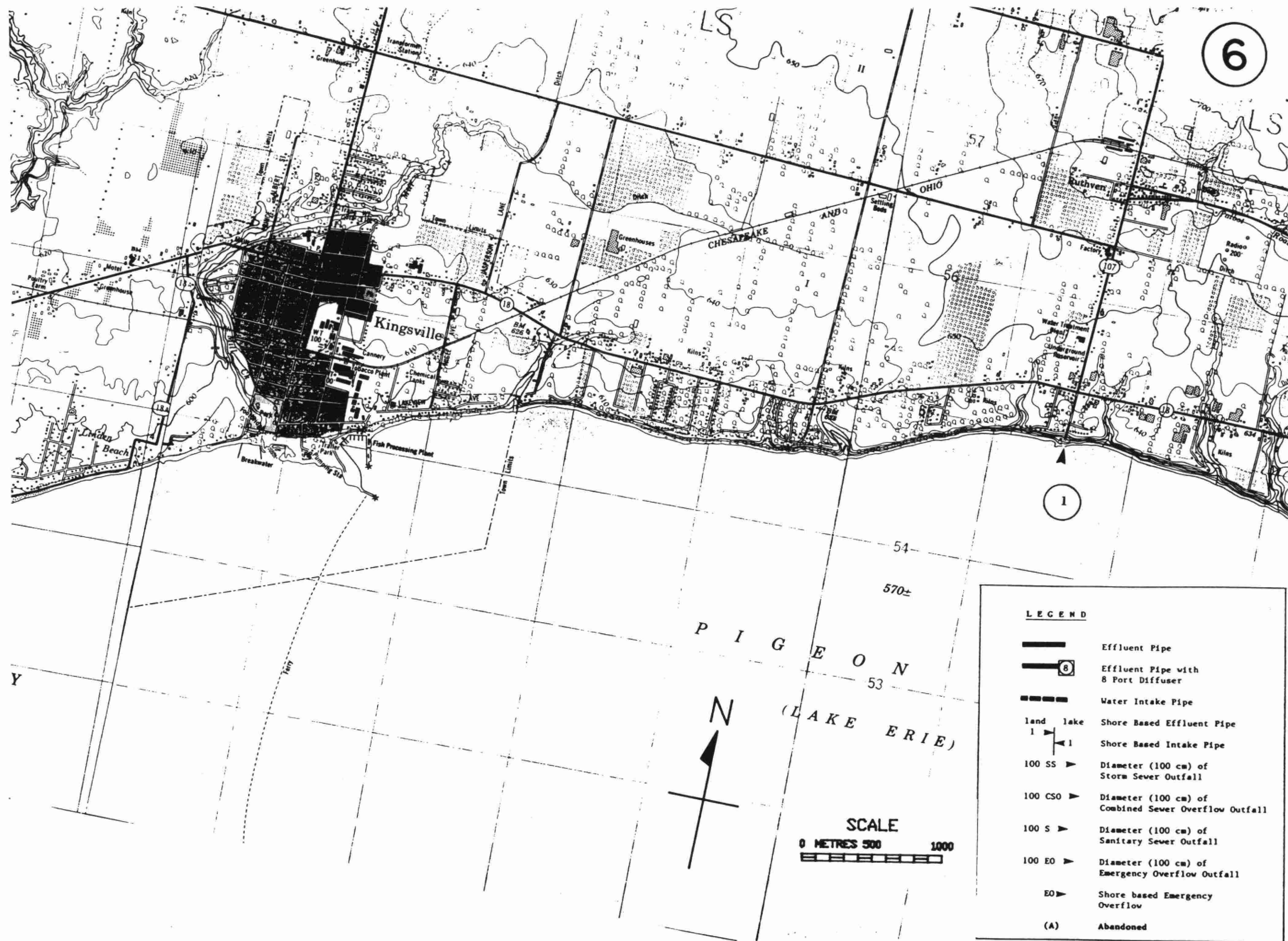
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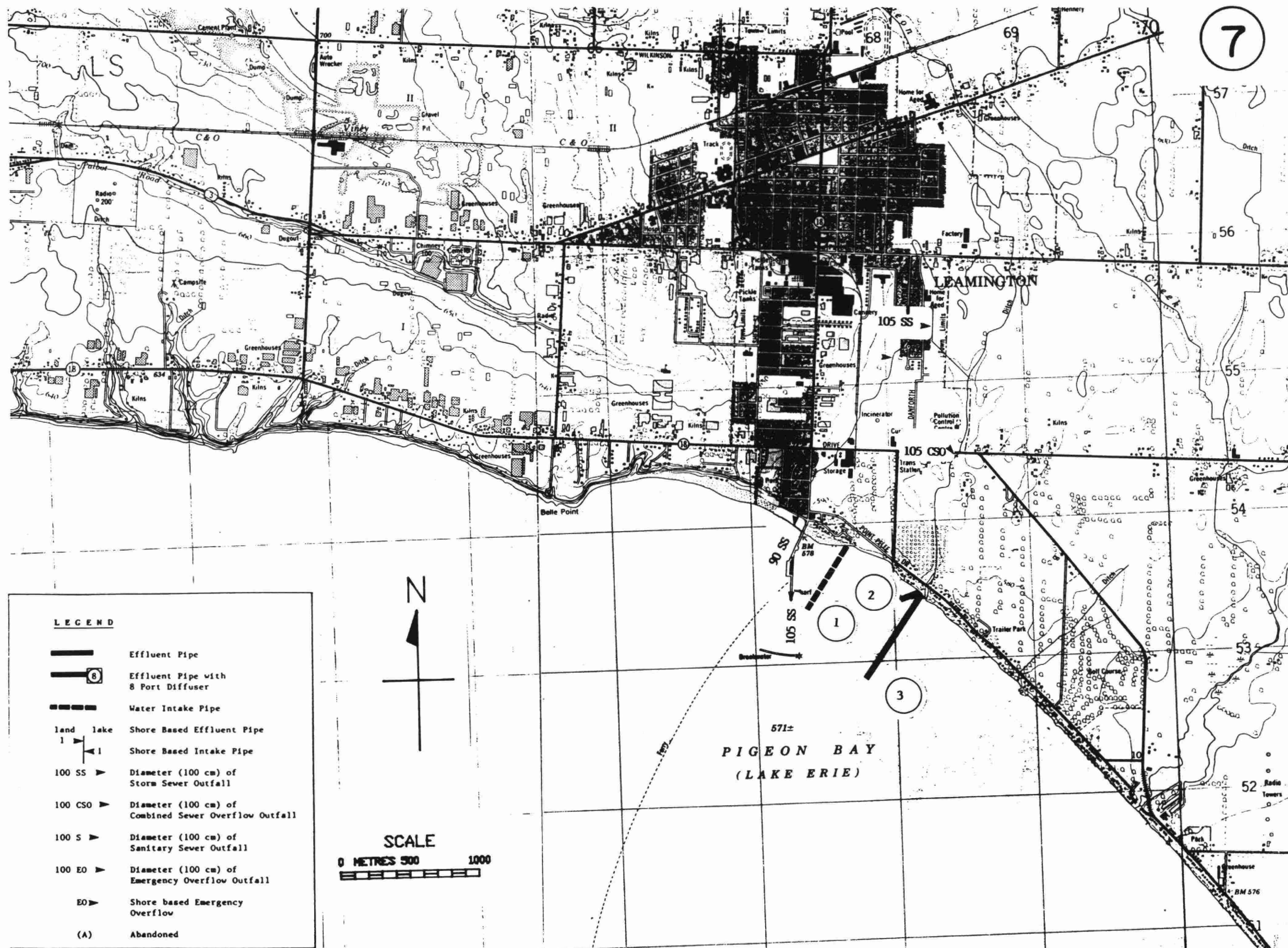
LEGEND

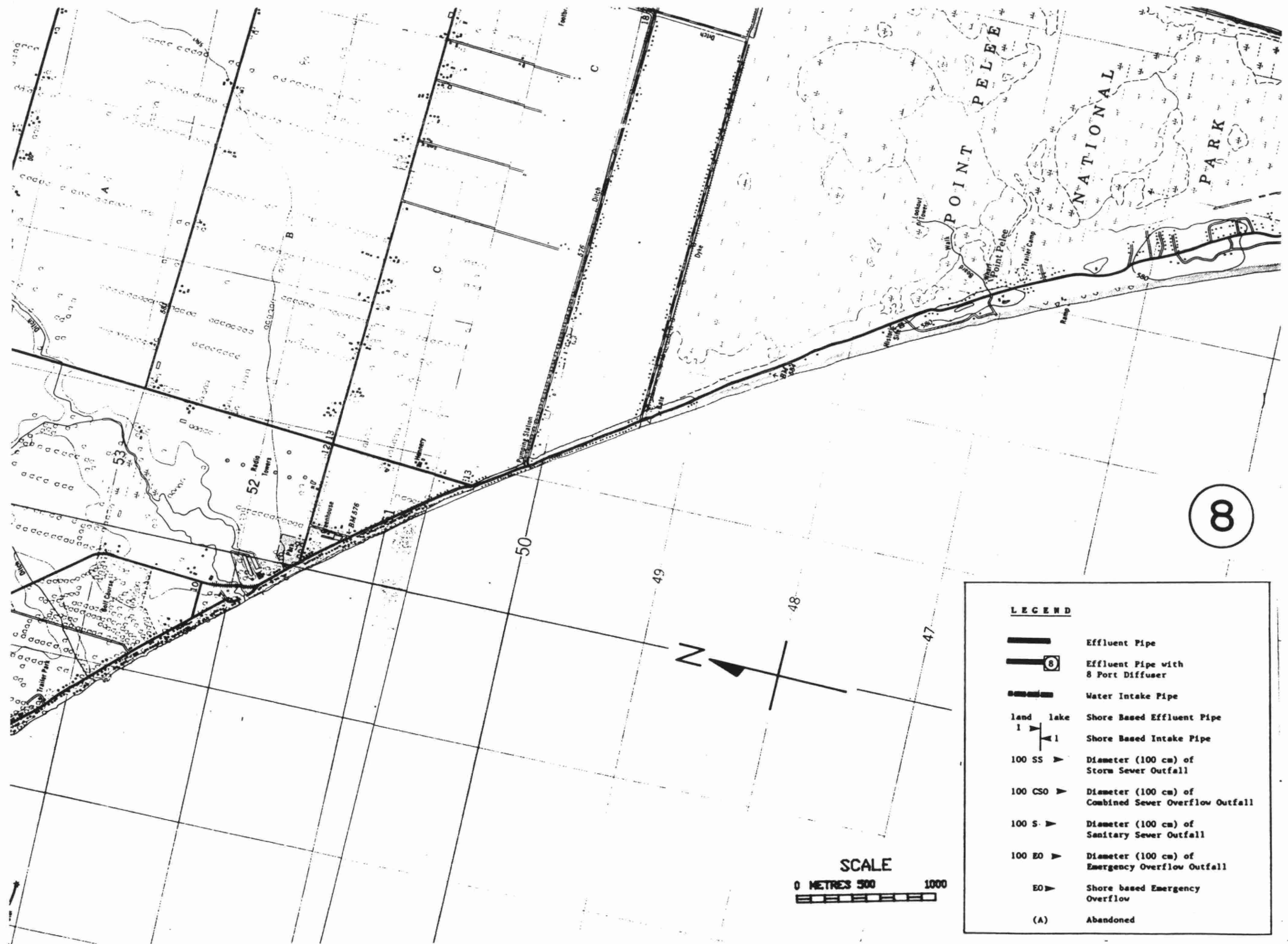
- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- Abandoned

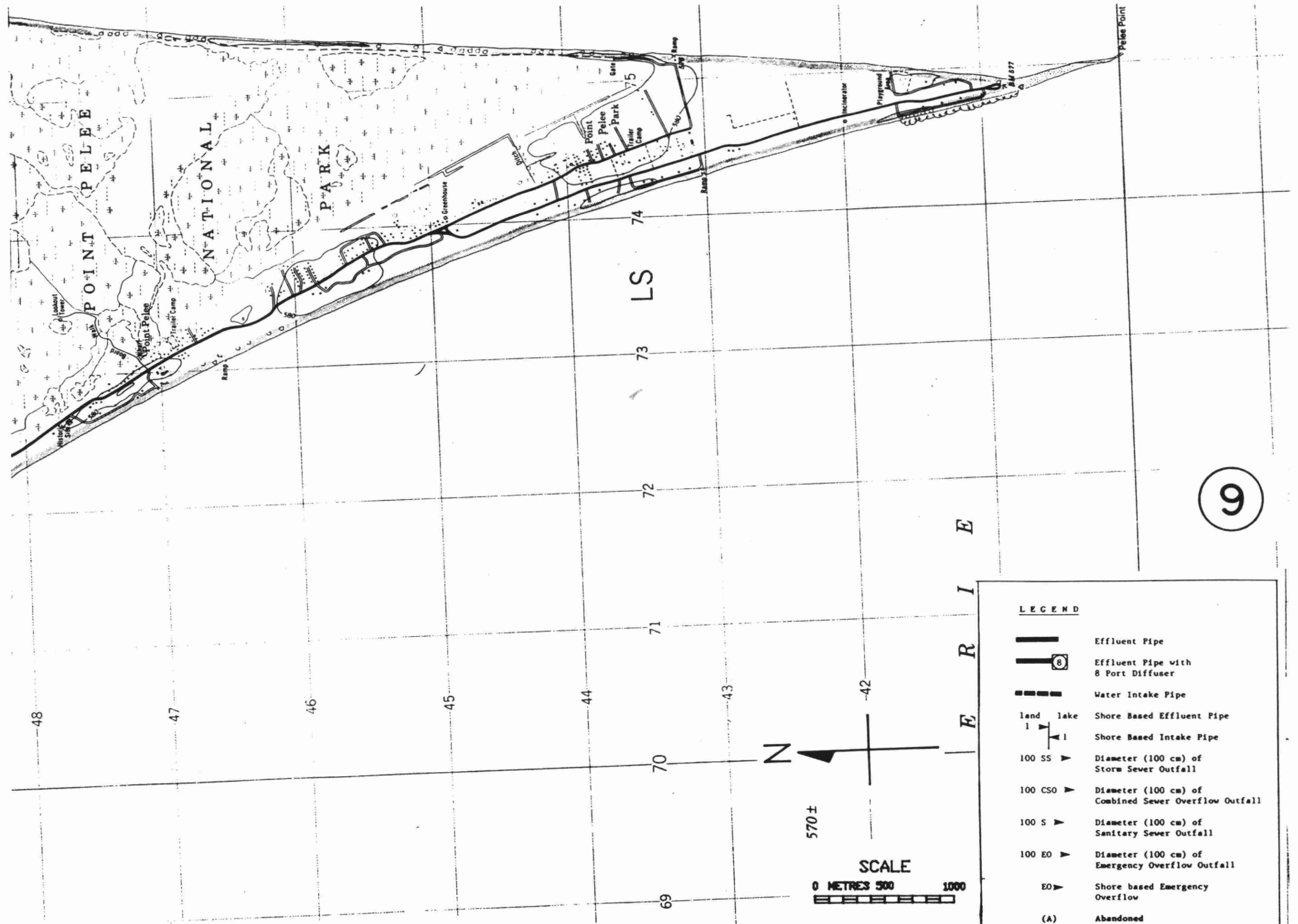
Name	Union MSS						
Intake/Outfall	Intake						
OMIS/INIS No.	210000853						
Structure No.	1						
Map Number	6						
Operating Authority	MOE						
Location	Kingsville						
Supplier/Receiver	Lake Erie						
Point of Discharge							
Terminal Basin	Lake Erie						
Activity	Municipal Water Treatment						
Process Type	Physical and Chemical						
Supply/Discharge Type	Continuous						
Treatment Type	Filtration, Coagulation Chlorination						
Comments							
Design Flow (1000m3/day)	72.74						
Mean Annual Flow (1000m3/day)	31.67						
Pipe length from shore (m)	44.08						
Pipe Diameter (cm)	122.00						
Water Depth at end of pipe (m)	6.55						
Water depth above end of pipe (m)	3.20						
Diffuser							
Number of ports							

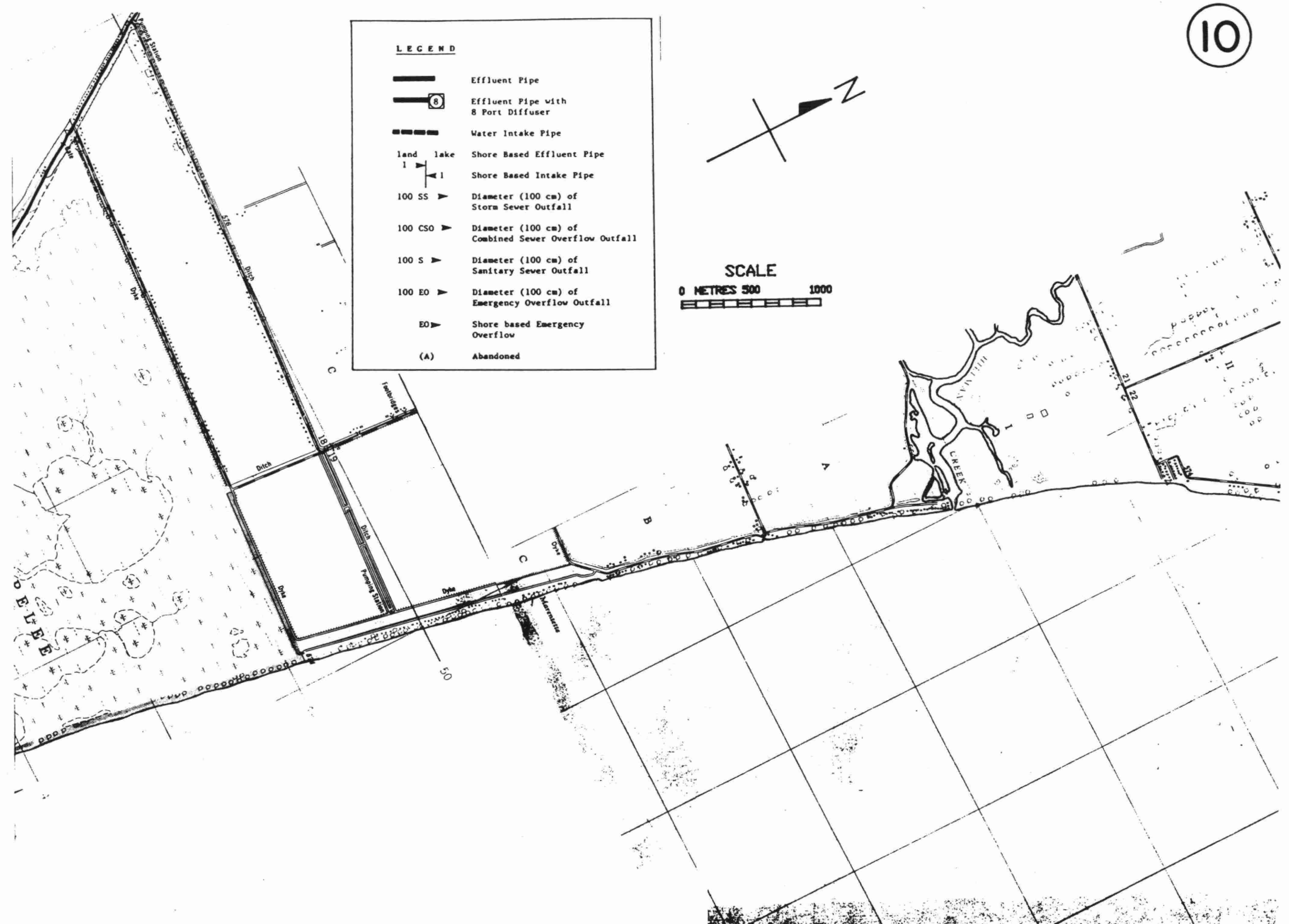


Name	H. J. Heinz Co.	Leamington WPCP	Leamington WPCP				
Intake/Outfall	Intake	Outfall	Outfall				
UMIS/INIS No.	0001020007	120001069	120001069				
Structure No.	1	2	3				
Map Number	7	7	7				
Operating Authority	IND	MUN/IND	MUN/IND				
Location	Leamington	Leamington	Leamington				
Supplier/Receiver	Pigeon Bay	Lake Erie	Lake Erie				
Point of Discharge		Offshore	Offshore				
Terminal Basin	Lake Erie	Lake Erie	Lake Erie				
Activity	Preparation of food products from locally grown produce.	Municipal Sewage Treatment	Municipal Sewage Treatment				
Process Type	NA	Secondary Treatment	Secondary Treatment				
Supply/Discharge Type	Continuous	Continuous	Continuous				
Treatment Type	Chlorination	Extended Aeration Activated Sludge P Removal-Continuous	Extended Aeration Activated Sludge P Removal-Continuous				
Comments	Extra Capacity of plant Used for Municipal Water Supply	Abandoned	Outfall shared by Municipality and H.J. Heinz Co.				
Design Flow (1000m3/day)	59.09	NA	45.46				
Mean Annual Flow (1000m3/day)	7.80	NA	11.80				
Pipe length from shore (m)	518.60	142.00	731.50				
Pipe Diameter (cm)	76.20	53.00	106.68				
Water Depth at end of pipe (m)	5.49	NA	1.52				
Water depth above end of pipe (m)	3.96	NA	5.33				
Diffuser		NO	NO				
Number of ports							

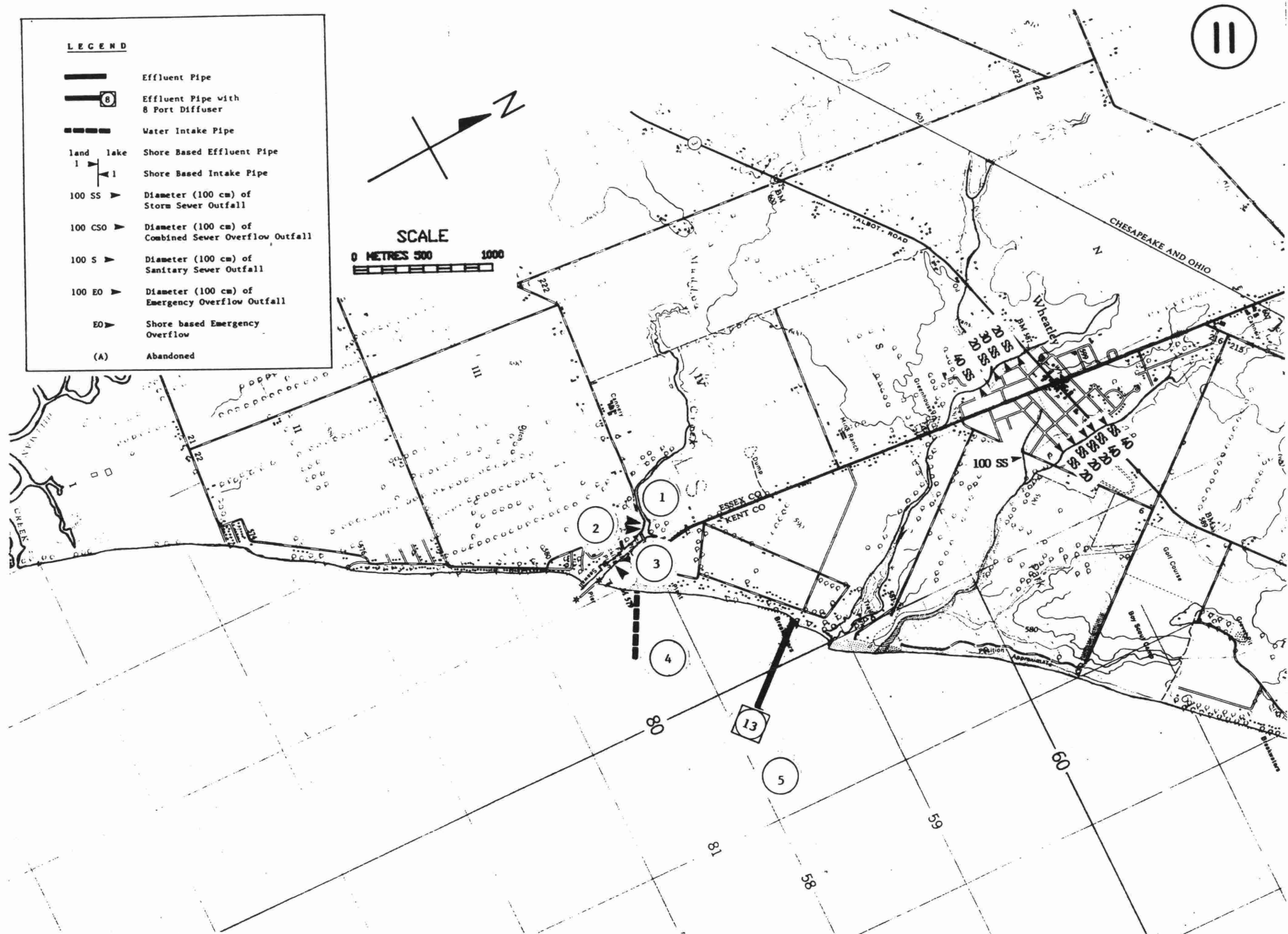


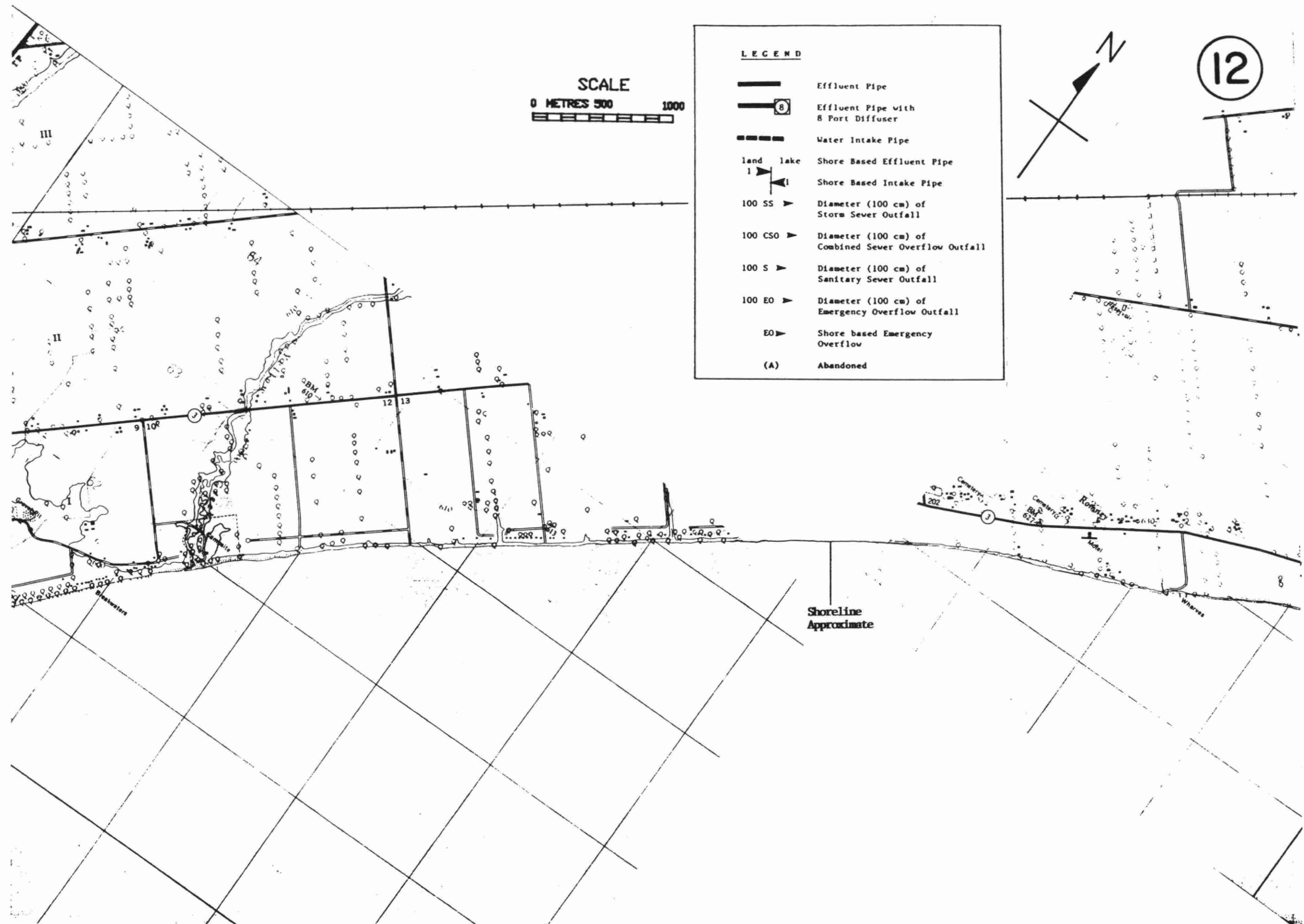






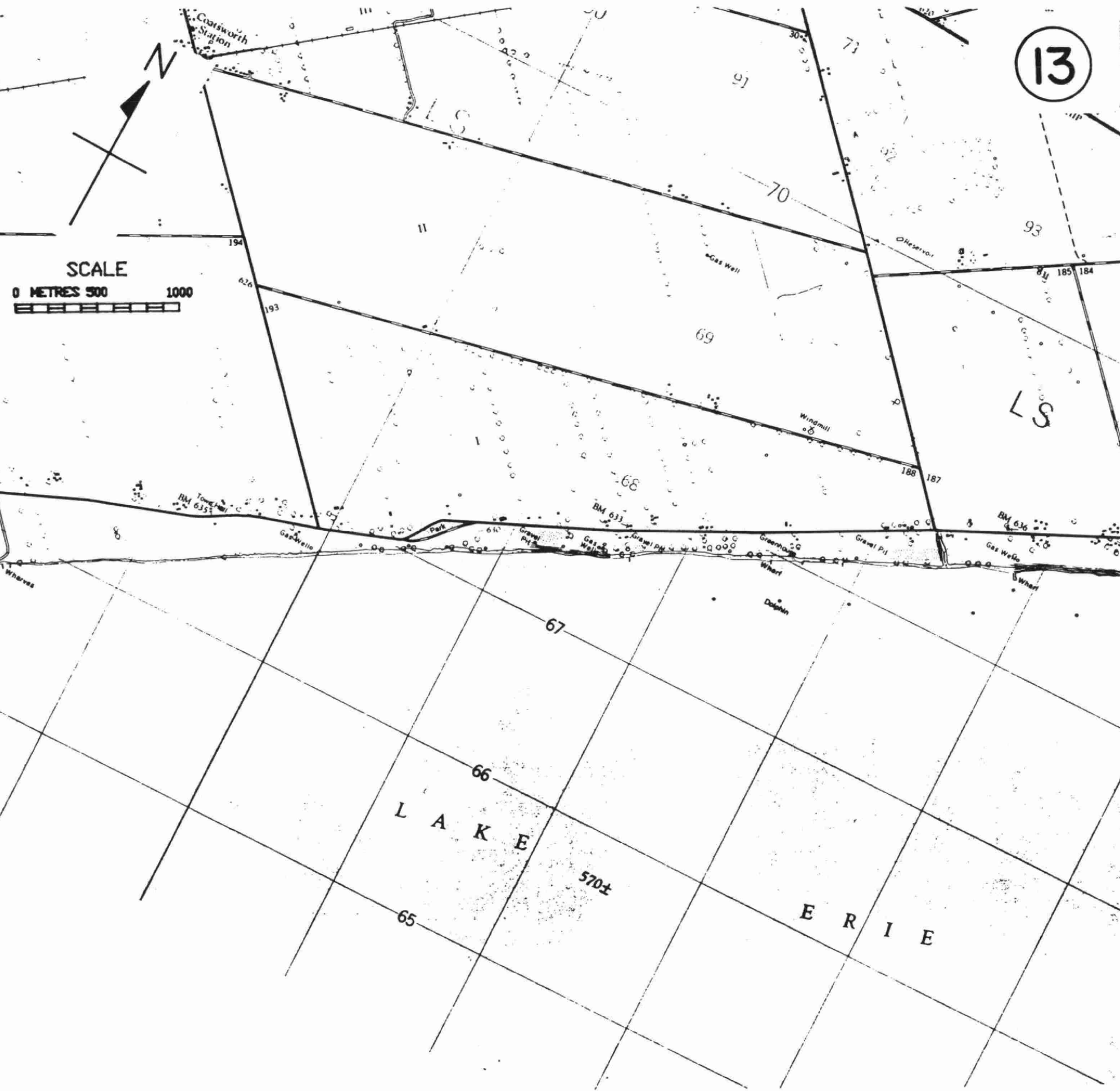
Name	Omstead Foods Ltd.	Omstead Foods Ltd.	Omstead Foods Ltd.	Wheatly WTP	Omstead Foods Ltd.	Romney WPCP	
Intake/Outfall	Outfall	Outfall	Outfall	Intake	Intake	Outfall	
UMIS/IMIS No.	0001050004	0001050004	0001050004		220003332	0001050004	110003246
Structure No.	1	2	3		4	4	5
Map Number	11	11	11		11	11	11
Operating Authority	IND	IND	IND	MOR	IND	MOR	
Location	Wheatly	Wheatly	Wheatly	Wheatly	Wheatly	Wheatly	
Supplier/Receiver	Muddy Creek	Muddy Creek	Muddy Creek	Lake Erie	Lake Erie	Lake Erie	
Point of Discharge	River Mouth	River Mouth	River Mouth			Offshore	
Terminal Basin	Lake Erie	Lake Erie	Lake Erie	Lake Erie	Lake Erie	Lake Erie	
Activity	Fish & Vegetables processed & frozen	Fish & Vegetables processed & frozen	Fish & Vegetables processed & frozen	Municipal Water Treatment	Fish & Vegetables processed & frozen	Municipal Sewage Treatment	
Process Type	NA	NA	NA	Physical and Chemical Treatment	Chemical Treatment	Secondary Treatment	
Supply/Discharge Type	Continuous when operating	Continuous when operating	Continuous when operating	Continuous	Continuous	Continuous	
Treatment Type	Activated Sludge Extended Aeration	Chlorination	Chlorination	Microstraining Clarification, Filtration chlorination	Chlorination	Extended Aeration P Removal-Continuous	
Comments		Refrigeration plant condensor #2 discharge	Refrigeration plant condensor #1 discharge	Intake Structure is shared with Omstead	Intake Structure is shared with the Village of Wheatly		
Design Flow (1000m3/day)	11.40	26.18	26.18	26.18	26.18	2.75	
Mean Annual Flow (1000m3/day)	3.70	12.80	6.09	18.90	18.90	0.49	
Pipe length from shore (m)	3.00	1.00	0.00	457.00	457.00	648.00	
Pipe Diameter (cm)	61.00	61.00	61.00	60.90	60.90	80.00	
Water Depth at end of pipe (m)	1.00	1.00	3.50	6.00	6.00	6.00	
Water depth above end of pipe (m)	0.30	0.30	0.30	3.60	3.60	5.40	
Diffuser	NO	NO	NO			YES	
Number of ports						13	



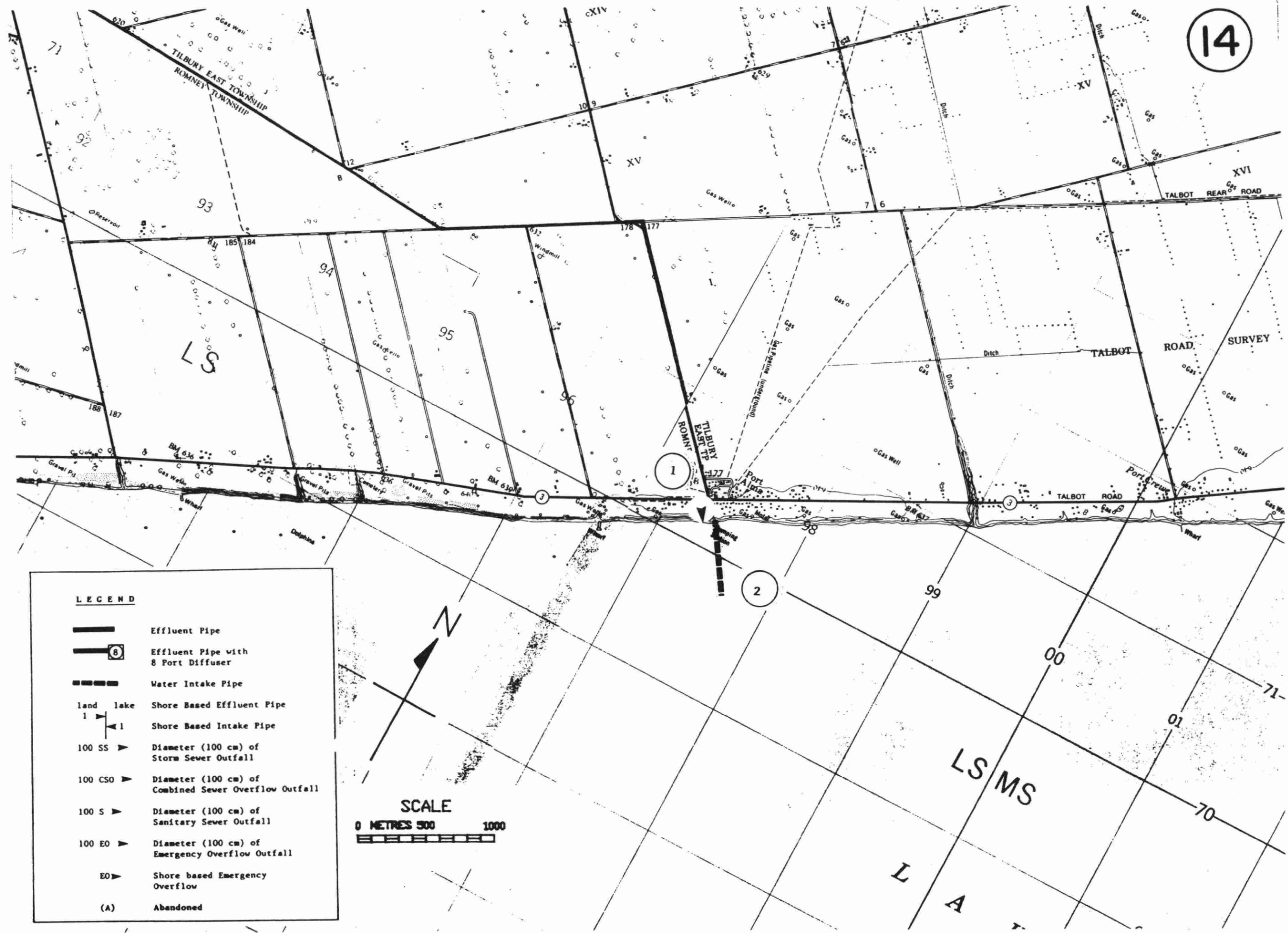


LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
- land lake  Shore Based Effluent Pipe
- land lake  Shore Based Intake Pipe
- 100 SS  Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO  Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S  Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO  Diameter (100 cm) of Emergency Overflow Outfall
- EO  Shore based Emergency Overflow
- (A) Abandoned



Name	Union Gas Ltd.	Union Gas Ltd.					
Intake/Outfall	Outfall	Intake					
UMIS/INIS No.	NA	NA					
Structure No.	1	2					
Map Number	14	14					
Operating Authority	IND	IND					
Location	Port Alma	Port Alma					
Supplier/Receiver	Lake Erie	Lake Erie					
Point of Discharge	Shore						
Terminal Basin	Lake Erie	Lake Erie					
Activity	Natural Gas Compression & Purification Plant	Natural Gas Compression & Purification Plant					
Process Type	NA	NA					
Supply/Discharge Type	Continuous	Continuous					
Treatment Type	No Treatment of cooling water.	Chlorination of drinking water, clarifier for cooling water.					
Comments							
Design Flow (1000m3/day)	1.40	1.40					
Mean Annual Flow (1000m3/day)	1.40	1.40					
Pipe length from shore (m)	0.00	518.00					
Pipe Diameter (cm)	20.30	25.40					
Water Depth at end of pipe (m)	NA	7.00					
Water depth above end of pipe (m)	NA	5.49					
Diffuser	NO						
Number of ports							

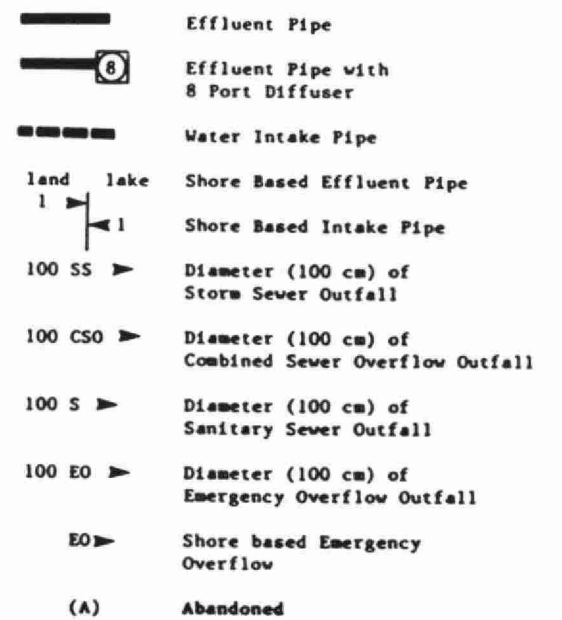


LEGEND

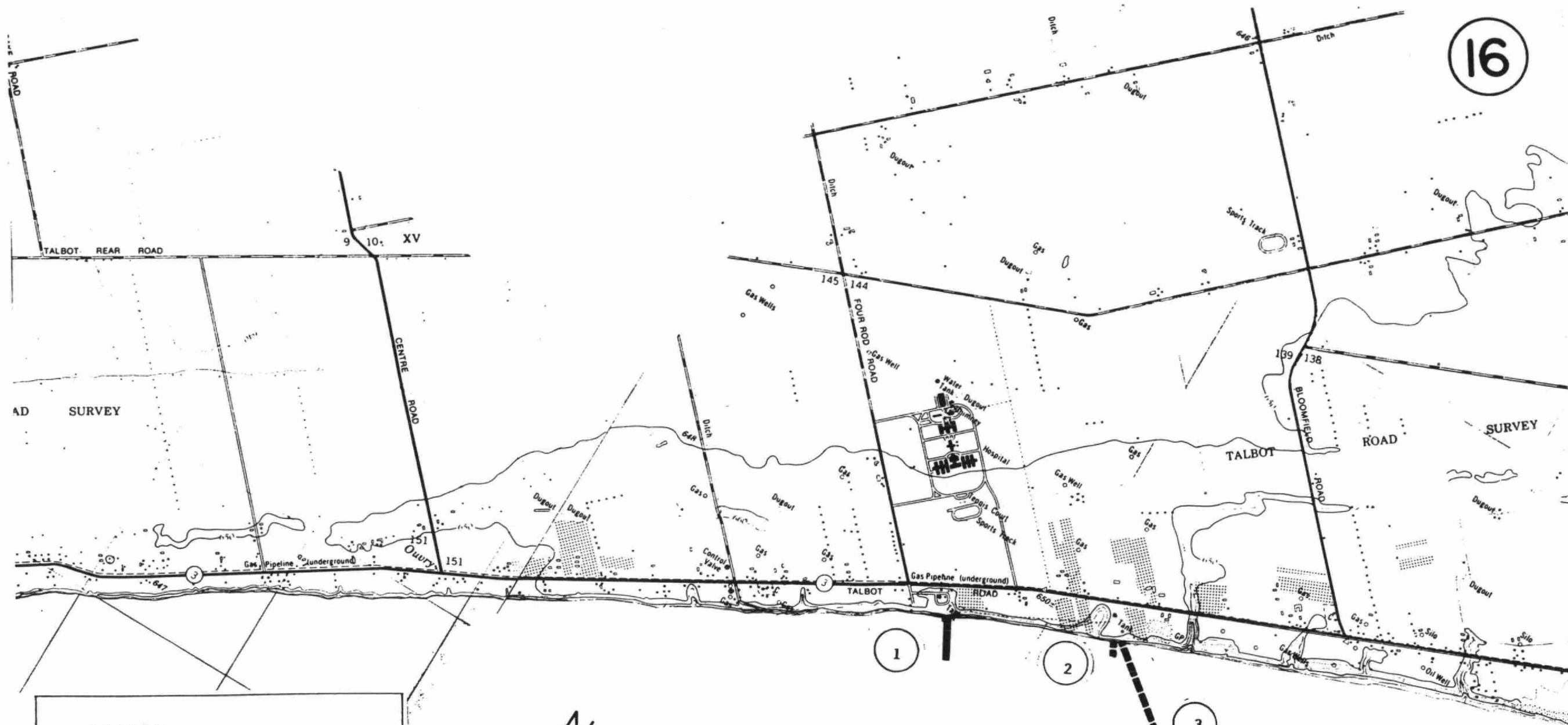
- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- Abandoned

SCALE

0 METRES 500 1000

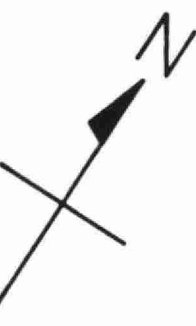


Name	Raleigh TWP STP	Blenheim WSS	Blenheim WSS				
Intake/Outfall	Outfall	Intake	Intake				
UNIS/INIS No.	110000935	210000274	210000274				
Structure No.	1	2	3				
Map Number	16	16	16				
Operating Authority	MUN	MOE	MOE				
Location	Raleigh TWP	Blenheim	Blenheim				
Supplier/Receiver	Lake Erie	Lake Erie	Lake Erie				
Point of Discharge	Offshore						
Terminal Basin	Lake Erie	Lake Erie	Lake Erie				
Activity	Municipal Sewage Treatment	Municipal Water Treatment	Municipal Water Treatment				
Process Type	Secondary Treatment	Physical and Chemical Treatment	Physical and Chemical Treatment				
Supply/Discharge Type	Batch (Seasonal)	Continuous	Continuous				
Treatment Type	Conventional Lagoon P Removal-Seasonal	Filtration, Coagulation Chlorination Fluoridation	Filtration, Coagulation Chlorination Fluoridation				
Comments							
Design Flow (1000m3/day)	0.46	4.54	4.54				
Mean Annual Flow (1000m3/day)	NA	2.21	2.21				
Pipe length from shore (m)	240.00	72.20	744.00				
Pipe Diameter (cm)	107.00	40.64	41.00				
Water Depth at end of pipe (m)	NA	9.14	NA				
Water depth above end of pipe (m)	NA	6.70	NA				
Diffuser	NO						
Number of ports							



LEGEND

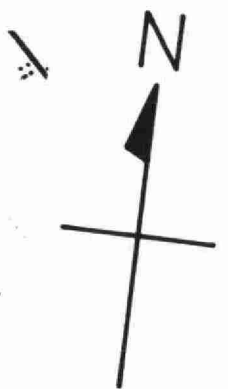
- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO Diameter (100 cm) of Emergency Overflow Outfall
- EO Shore based Emergency Overflow
- (A) Abandoned



SCALE
0 METRES 500 1000

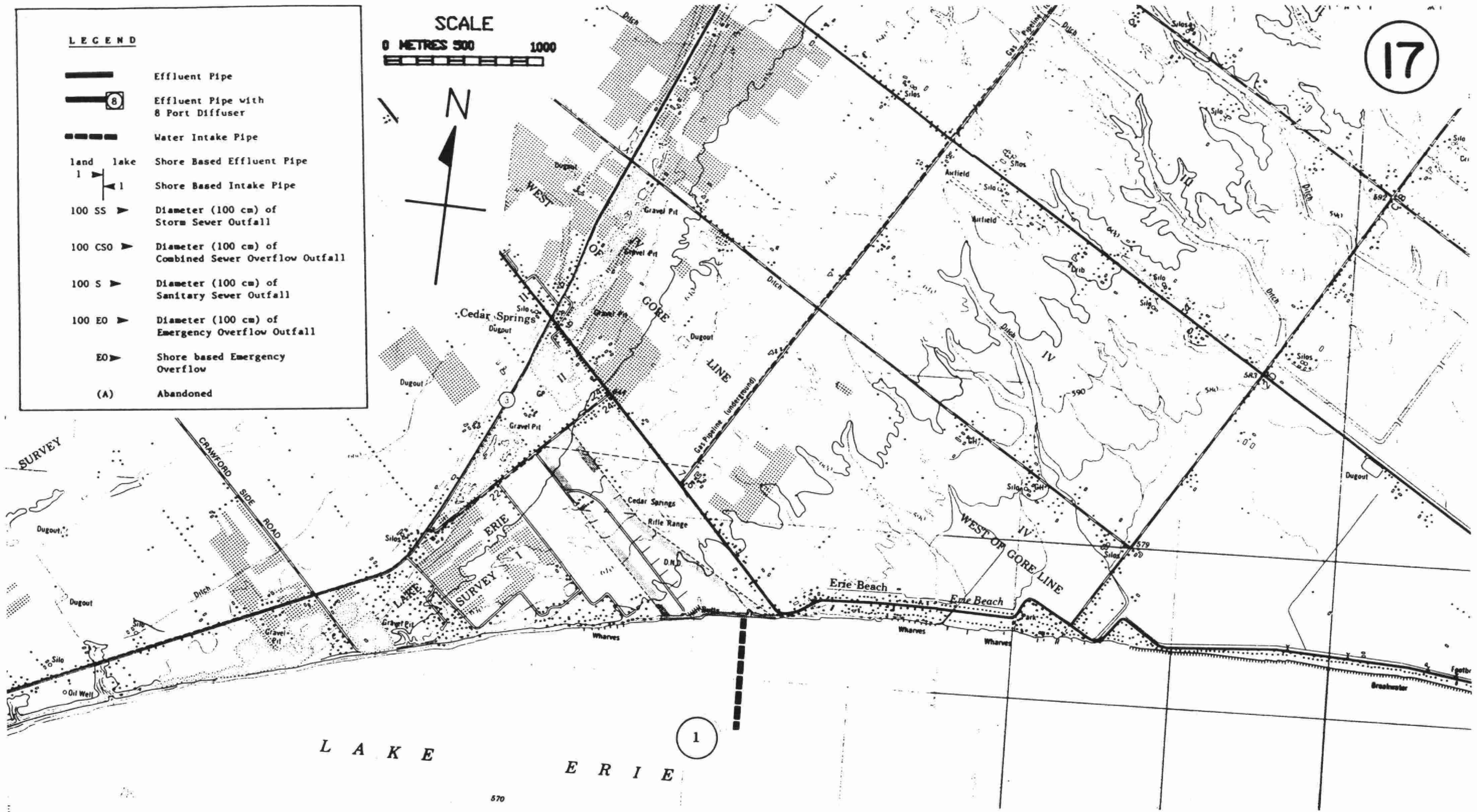
Name	Kent County WSS	Erieau Erie Beach WSS					
Intake/Outfall	Intake	Intake					
UMIS/IMIS No.	210003057	210001415					
Structure No.	1	1					
Map Number	17	17					
Operating Authority	MOE	MOE					
Location	Erie Beach	Erieau Erie Beach					
Supplier/Receiver	Lake Erie	Lake Erie					
Point of Discharge							
Terminal Basin	Lake Erie	Lake Erie					
Activity	Municipal Water Treatment	Municipal Water Treatment					
Process Type	Physical and Chemical Treatment	Physical and Chemical Treatment					
Supply/Discharge Type	Continuous	Continuous					
Treatment Type	Filtration, Coagulation Chlorination	Filtration, Coagulation Chlorination					
Comments	Same Intake as Erieau Erie Beach WSS	Same Intake as Kent County WSS					
Design Flow (1000m3/day)	68.19	2.60					
Mean Annual Flow (1000m3/day)	26.61	0.35					
Pipe length from shore (m)	698.30	698.30					
Pipe Diameter (cm)	122.00	122.00					
Water Depth at end of pipe (m)	10.51	10.51					
Water depth above end of pipe (m)	7.92	7.92					
Diffuser							
Number of ports							

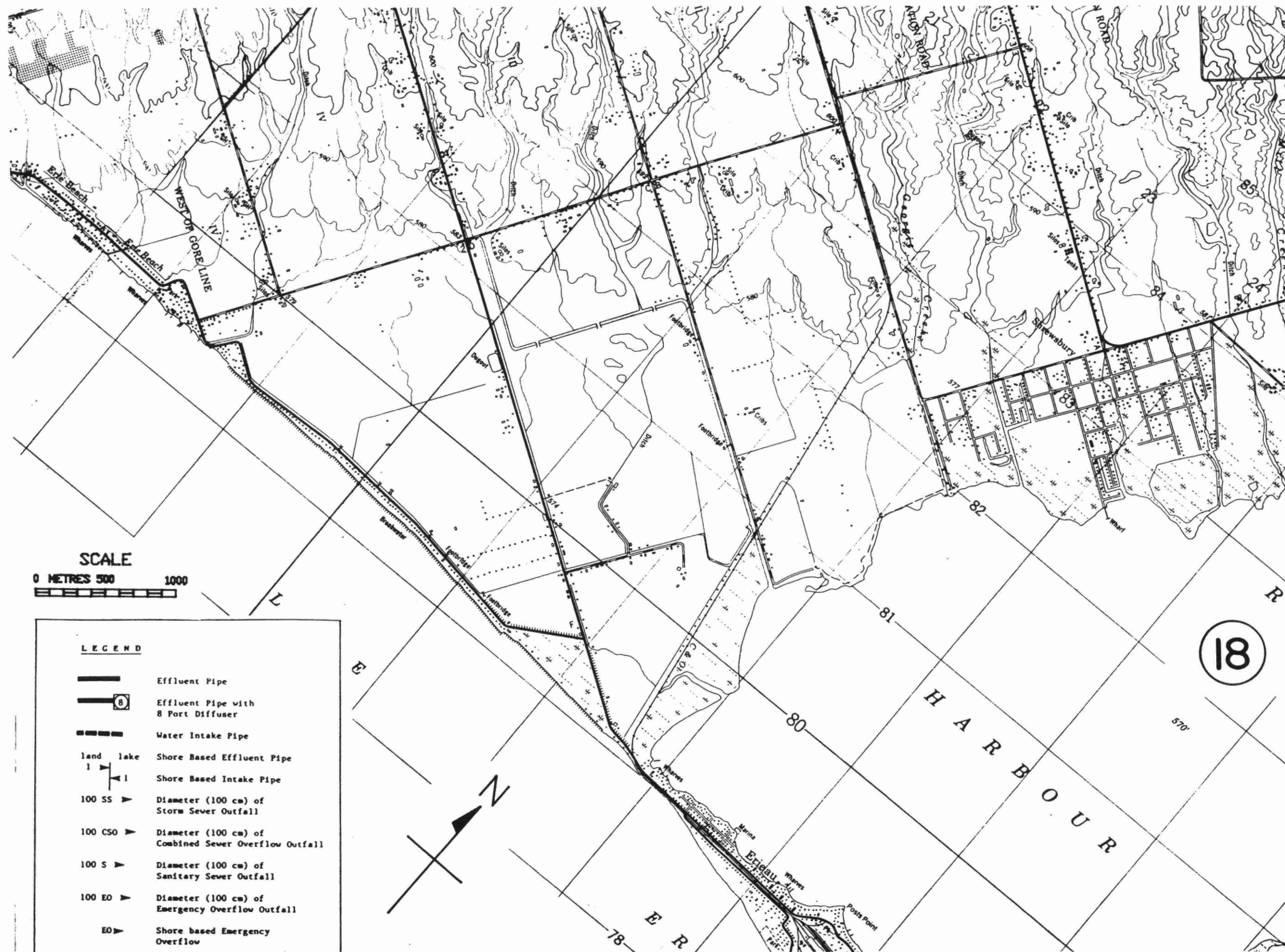
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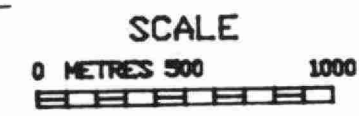
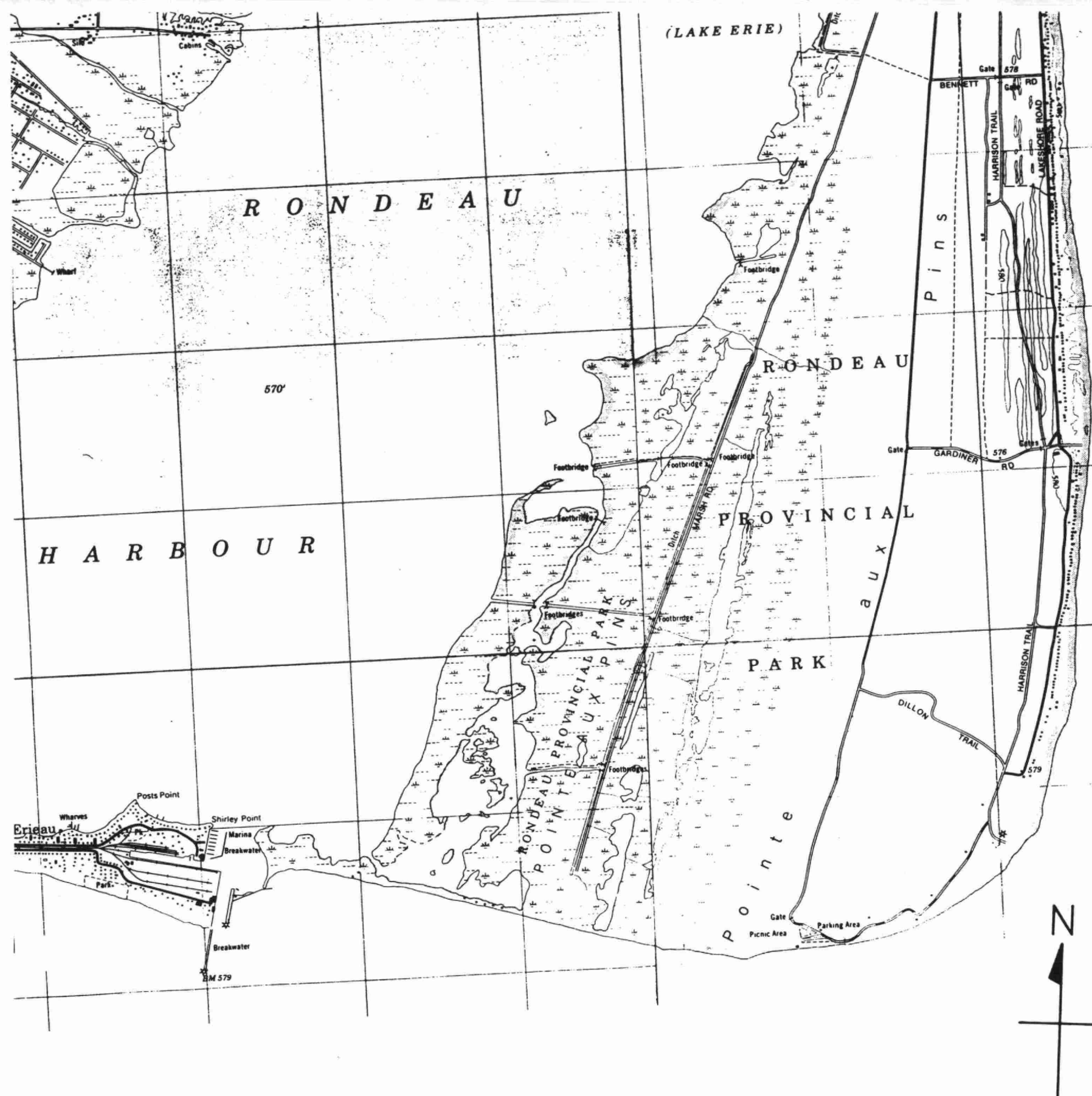


LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- Abandoned



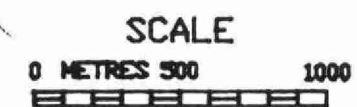
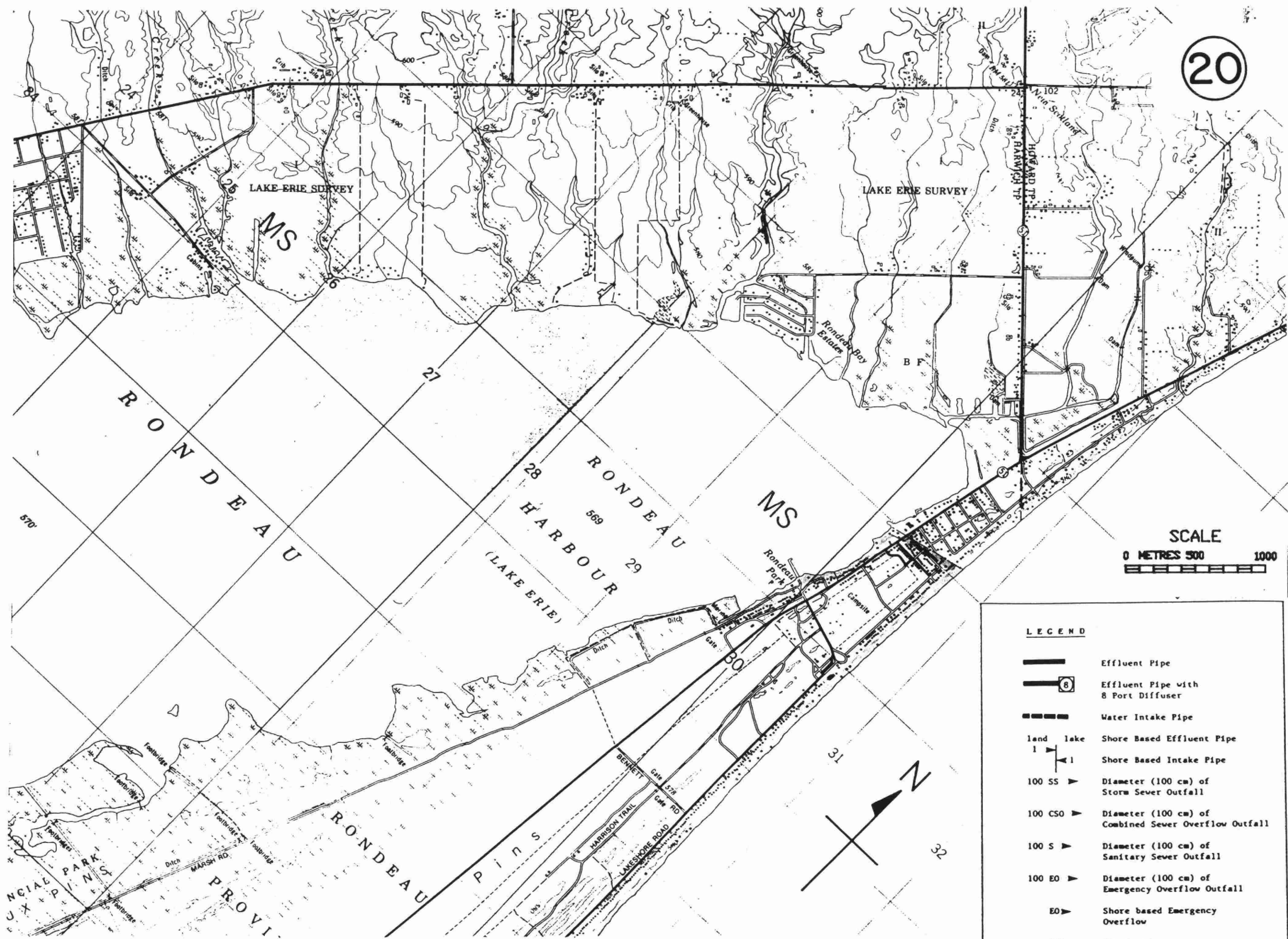




LEGEND

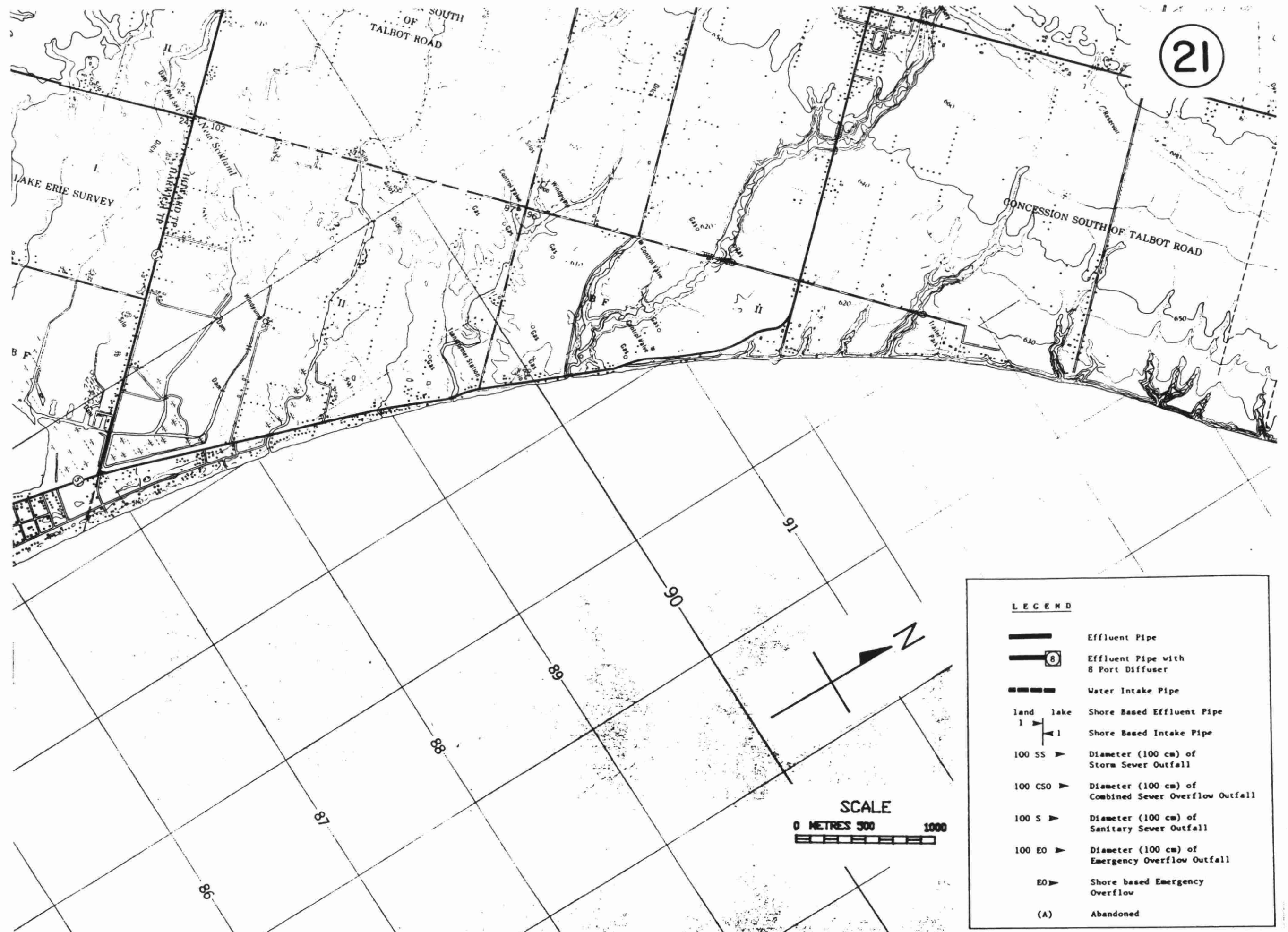
- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO Diameter (100 cm) of Emergency Overflow Outfall
- EO Shore based Emergency Overflow
- (A) Abandoned



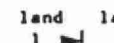
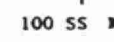
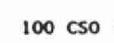
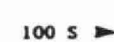
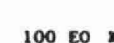
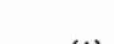


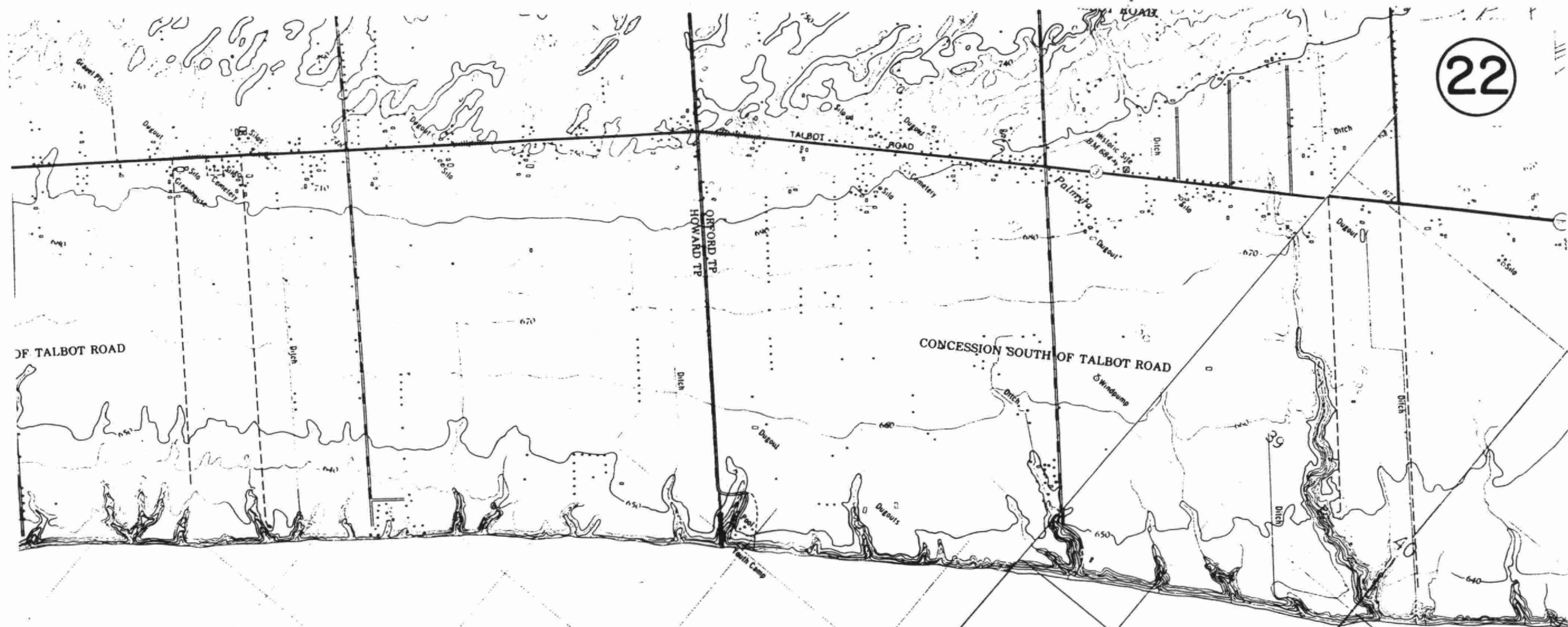
LEGEND

	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
	Diameter (100 cm) of Storm Sewer Outfall
	Diameter (100 cm) of Combined Sewer Overflow Outfall
	Diameter (100 cm) of Sanitary Sewer Outfall
	Diameter (100 cm) of Emergency Overflow Outfall
	Shore based Emergency Overflow
	Abandoned



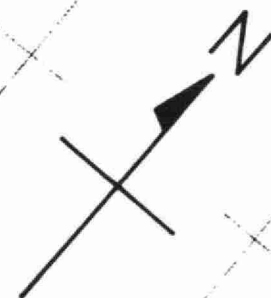
LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  100 SS > Diameter (100 cm) of Storm Sewer Outfall
-  100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
-  100 S > Diameter (100 cm) of Sanitary Sewer Outfall
-  100 EO > Diameter (100 cm) of Emergency Overflow Outfall
-  EO > Shore based Emergency Overflow
-  (A) Abandoned



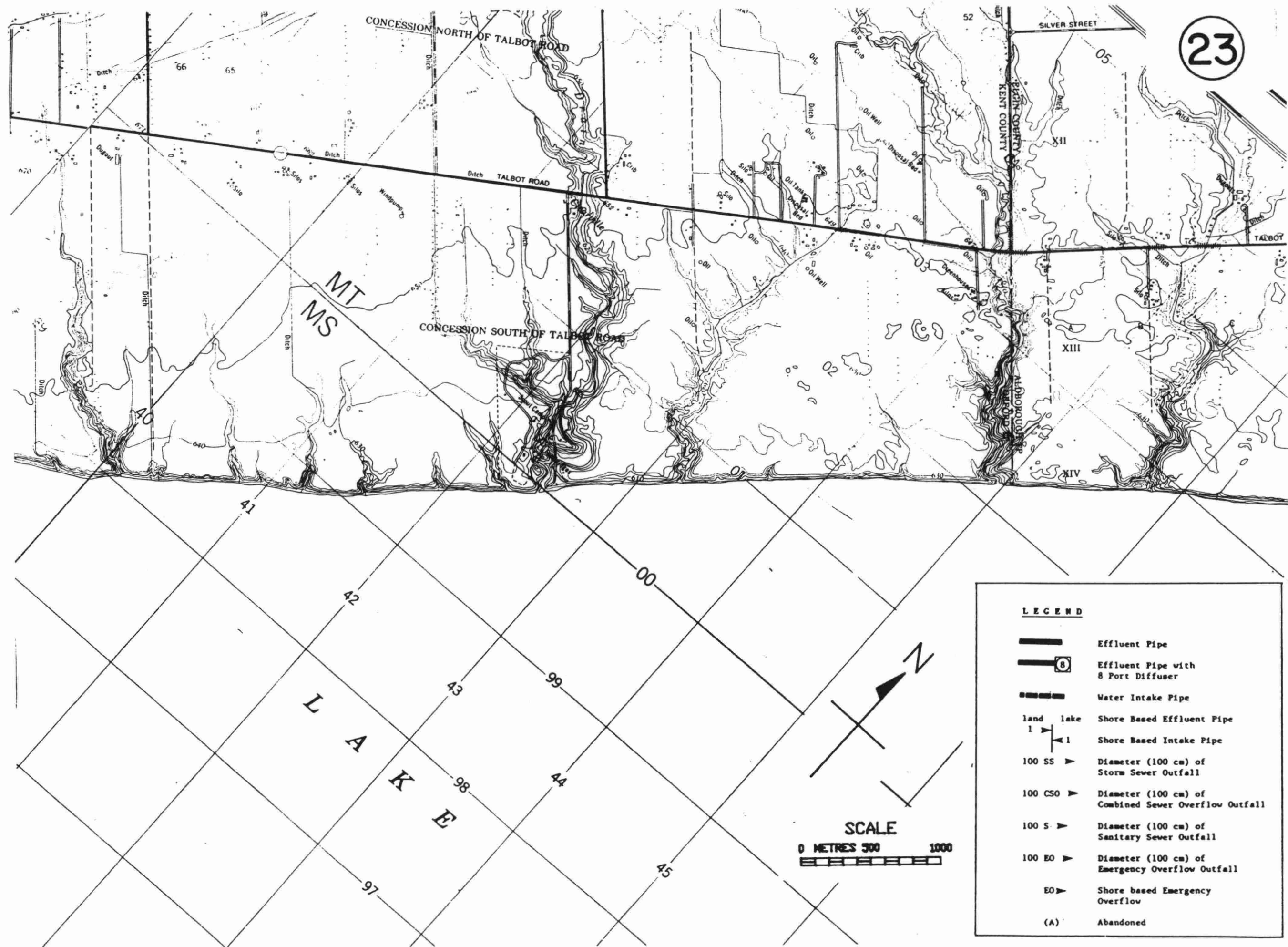
LEGEND

- | | |
|---|---|
|  | Effluent Pipe |
|  | Effluent Pipe with
8 Port Diffuser |
|  | Water Intake Pipe |
| land lake | |
| 1  | Shore Based Effluent Pipe |
|  1 | Shore Based Intake Pipe |
| 100 SS  | Diameter (100 cm) of
Storm Sewer Outfall |
| 100 CSO  | Diameter (100 cm) of
Combined Sewer Overflow Outfall |
| 100 S  | Diameter (100 cm) of
Sanitary Sewer Outfall |
| 100 EO  | Diameter (100 cm) of
Emergency Overflow Outfall |
| EO  | Shore based Emergency
Overflow |
| (A) | Abandoned |



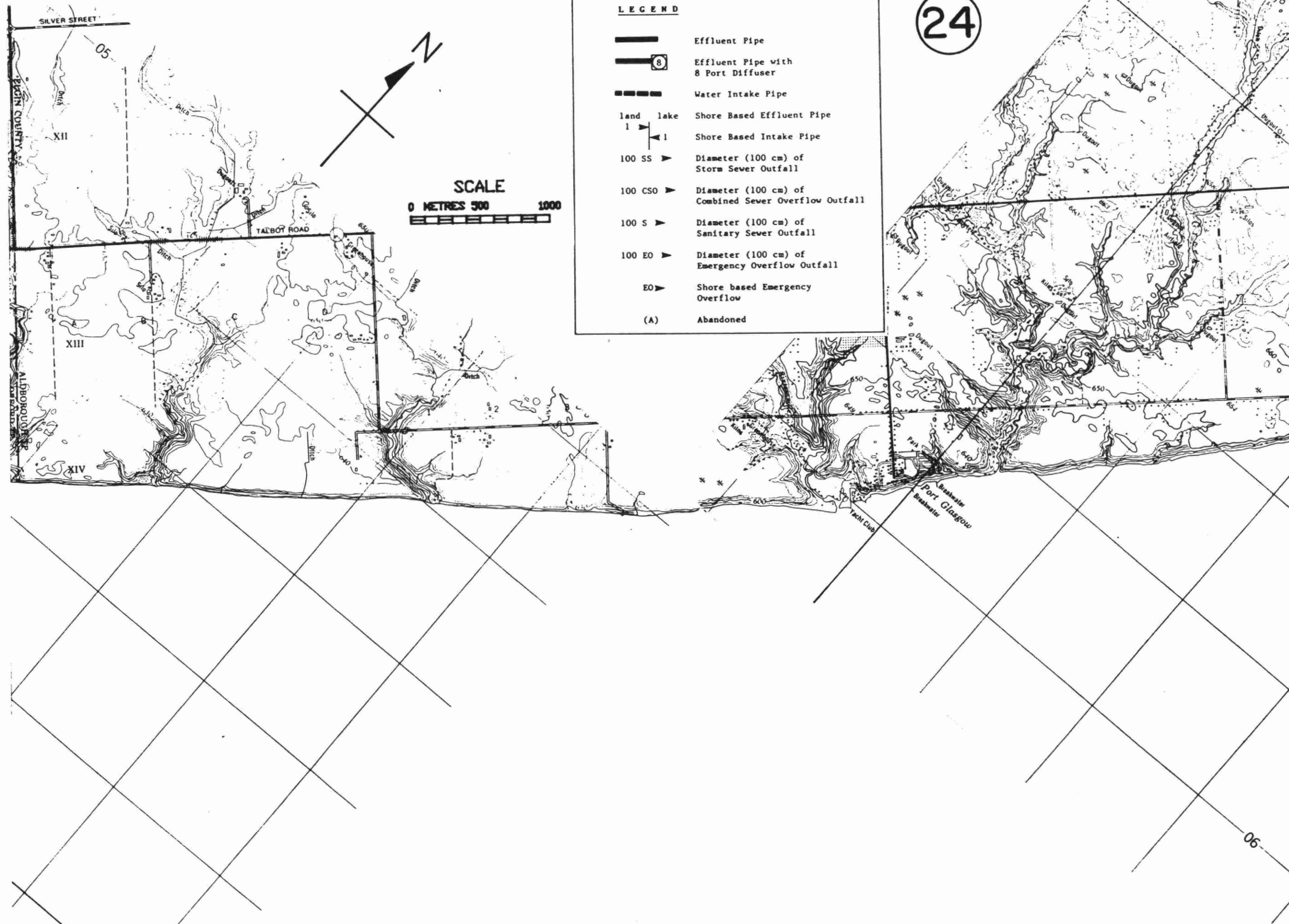
SCALE

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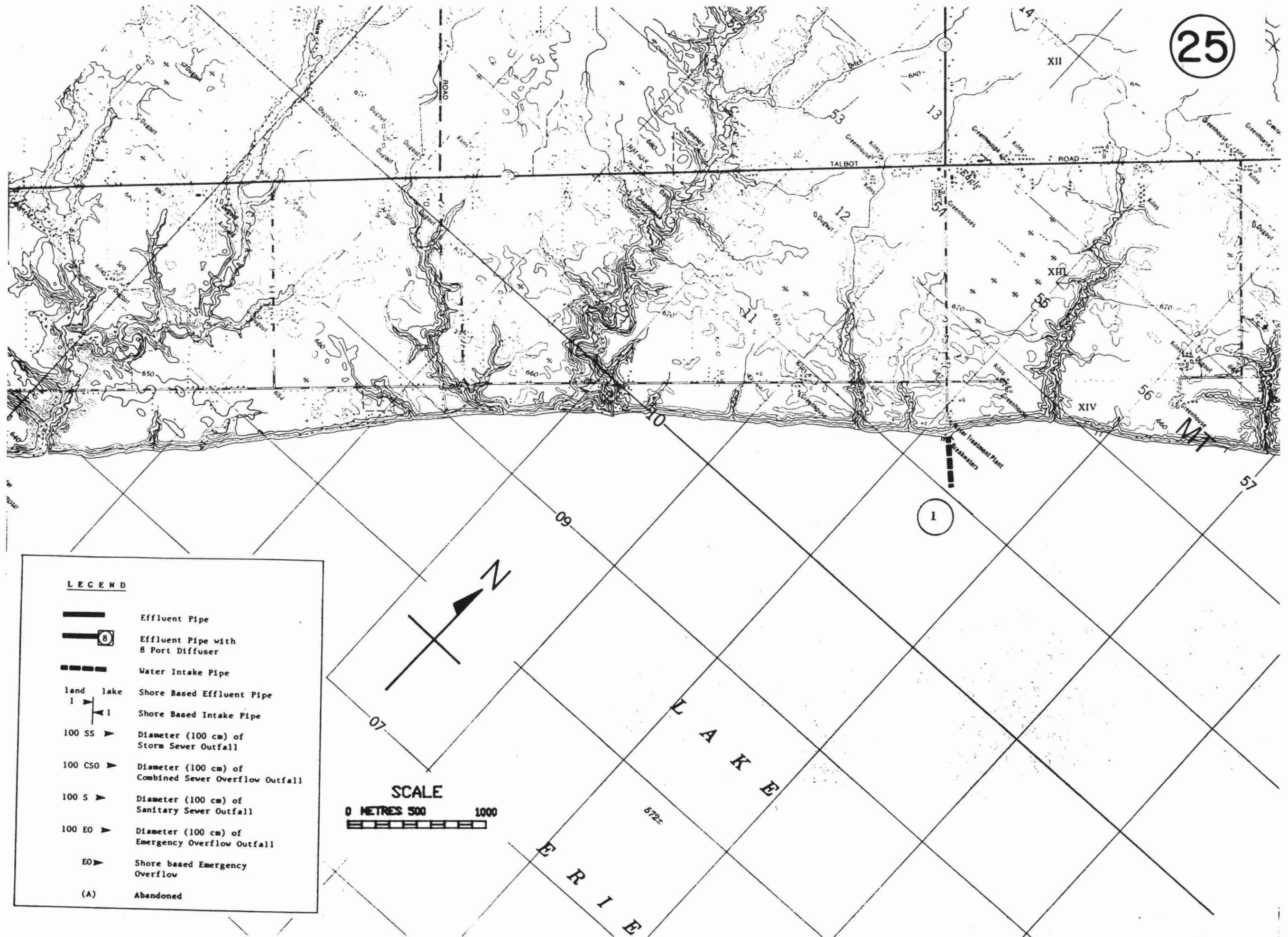


LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- Abandoned



Name	West Lorne WTP						
Intake/Outfall	Intake						
UMIS/IMIS No.	220002949						
Structure No.	1						
Map Number	25						
Operating Authority	MUN POC						
Location	West Lorne						
Supplier/Receiver	Lake Erie						
Point of Discharge							
Terminal Basin	Lake Erie						
Activity	Municipal Water Treatment						
Process Type	Physical and Chemical Treatment						
Supply/Discharge Type	Continuous						
Treatment Type	Flocculation, Settling Filters, Chlorination Fluoridation						
Comments							
Design Flow (1000m3/day)	6.80						
Mean Annual Flow (1000m3/day)	2.20						
Pipe length from shore (m)	366.00						
Pipe Diameter (cm)	25.00						
Water Depth at end of pipe (m)	6.70						
Water depth above end of pipe (m)	4.70						
Diffuser							
Number of ports							



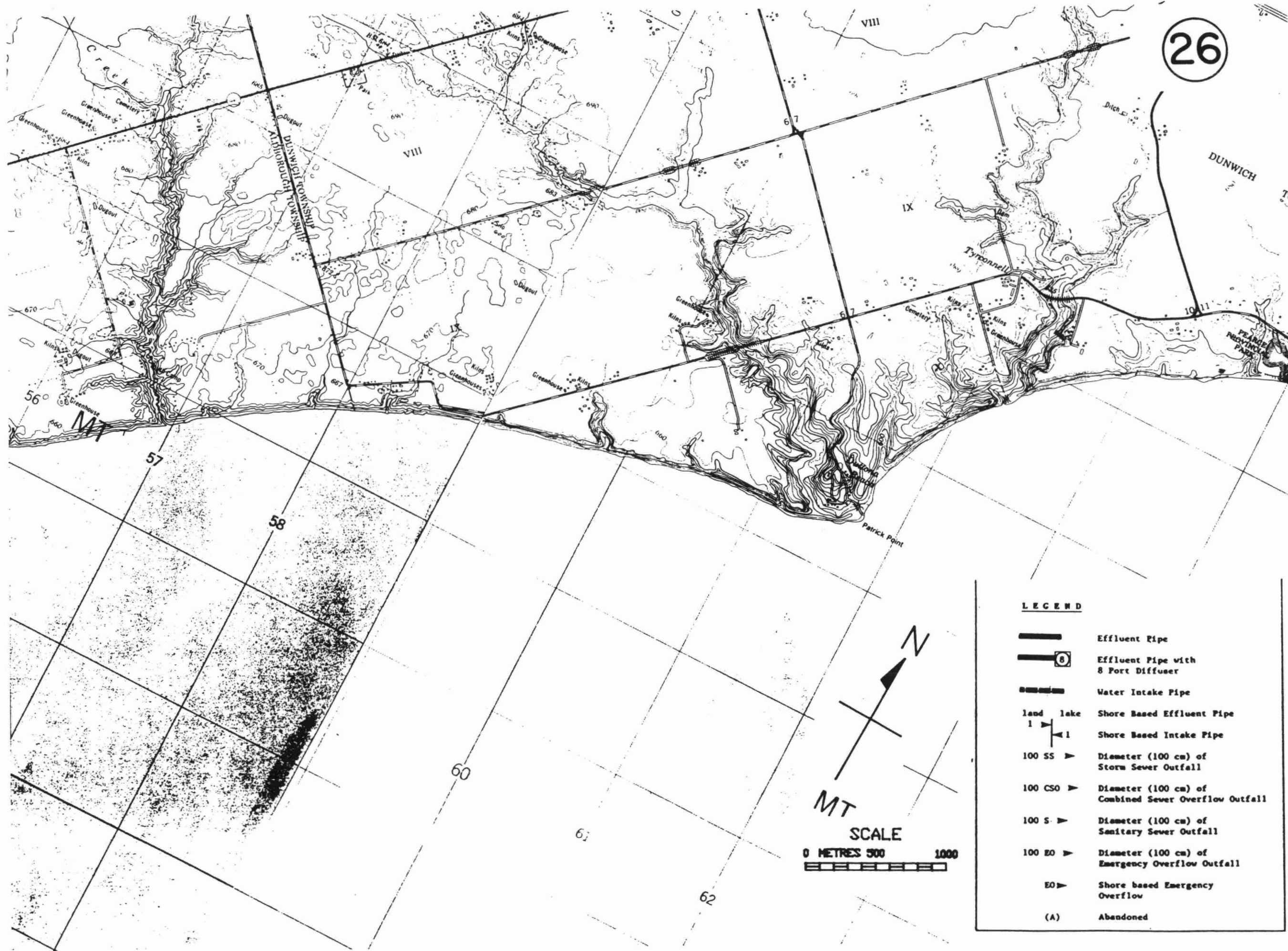
LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS > Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S > Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO > Diameter (100 cm) of Emergency Overflow Outfall
- EO > Shore based Emergency Overflow
- (A) Abandoned

SCALE

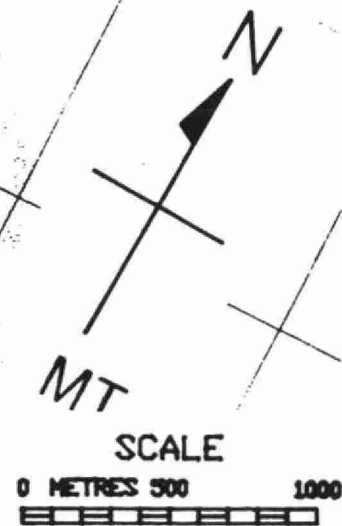
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LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  Diameter (100 cm) of Storm Sewer Outfall
-  Diameter (100 cm) of Combined Sewer Overflow Outfall
-  Diameter (100 cm) of Sanitary Sewer Outfall
-  Diameter (100 cm) of Emergency Overflow Outfall
-  Shore based Emergency Overflow
-  Abandoned

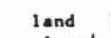
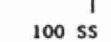
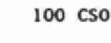
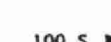
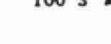


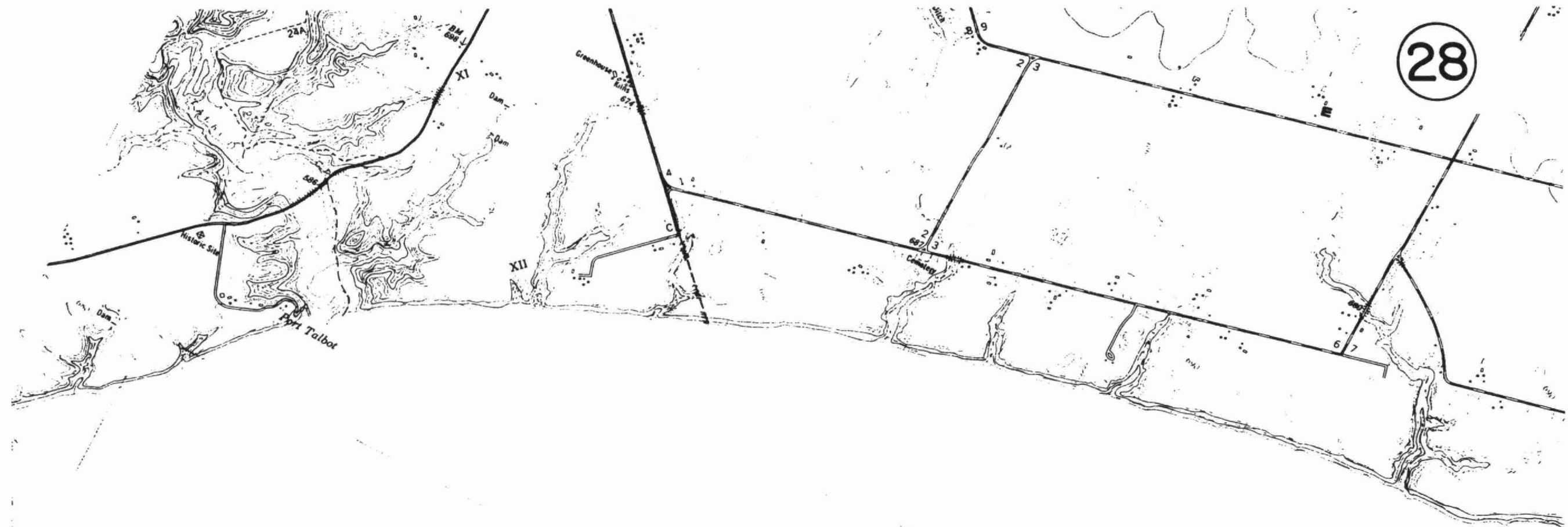
27



SCALE
0 METRES 500 1000

LEGEND

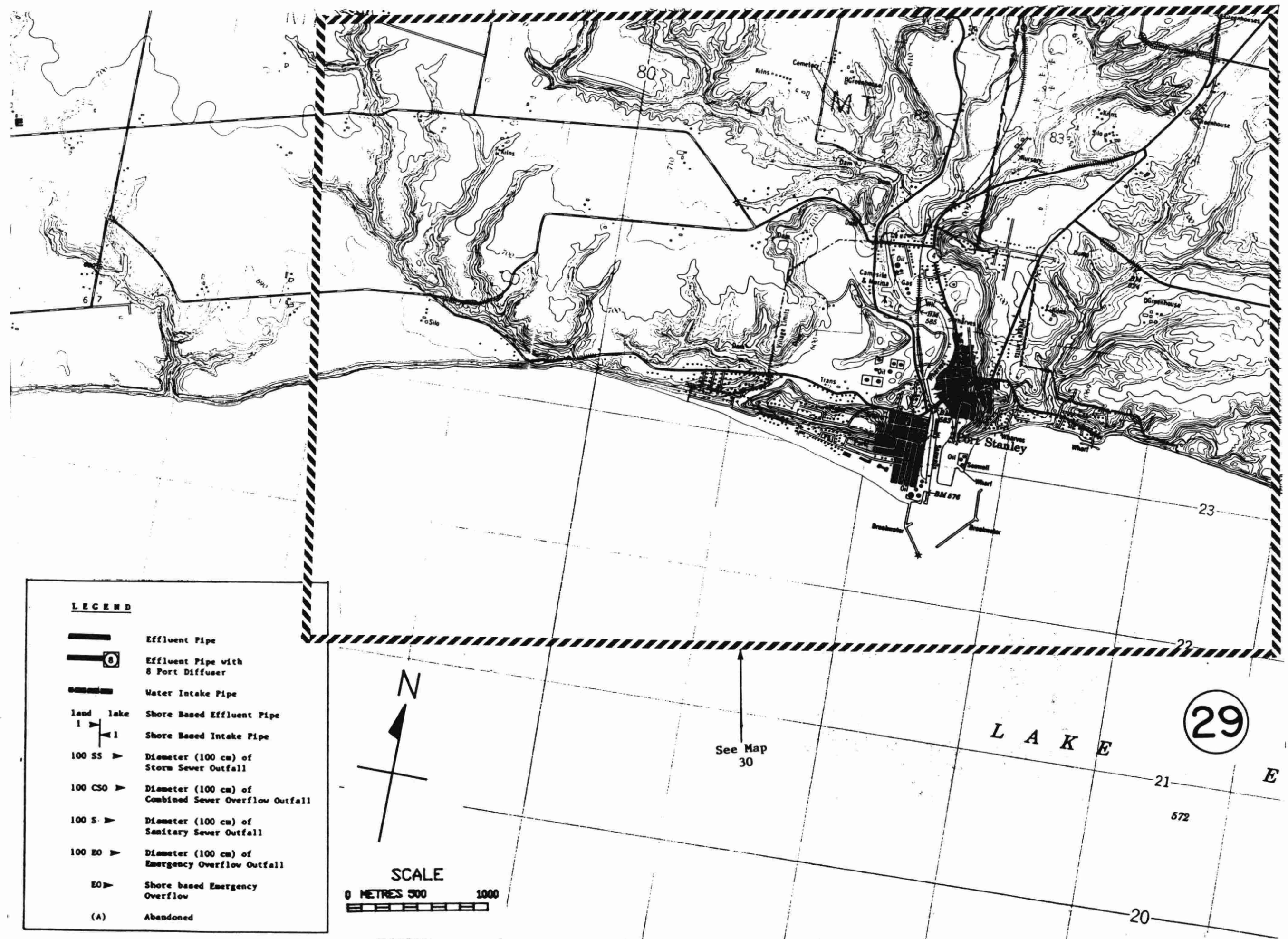
-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  land lake
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  100 SS > Diameter (100 cm) of Storm Sewer Outfall
-  100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
-  100 S > Diameter (100 cm) of Sanitary Sewer Outfall
-  100 EO > Diameter (100 cm) of Emergency Overflow Outfall
-  EO > Shore based Emergency Overflow
-  (A) Abandoned



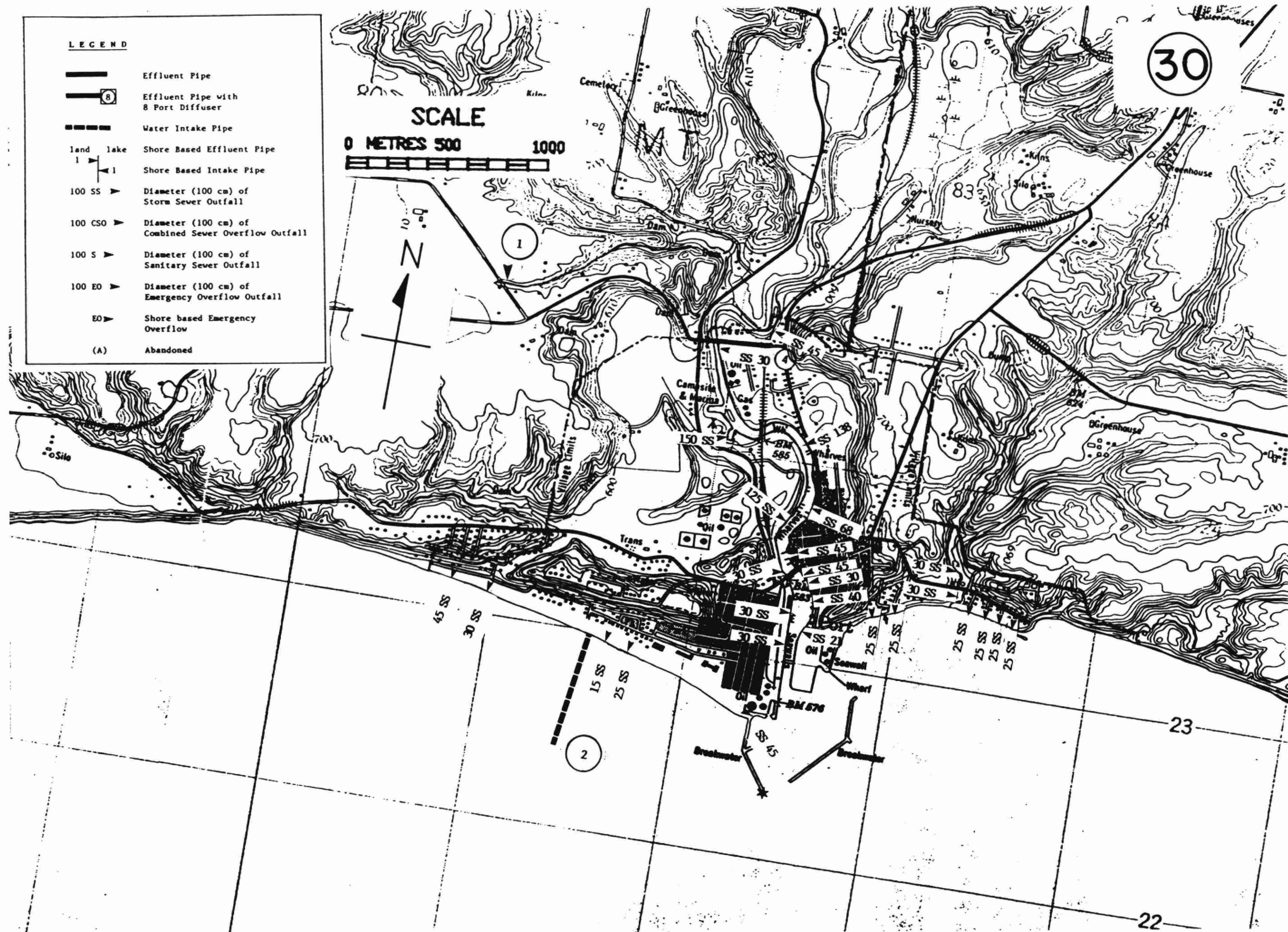
LEGEND

	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS >	Diameter (100 cm) of Storm Sewer Outfall
100 CSO >	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S >	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO >	Diameter (100 cm) of Emergency Overflow Outfall
EO >	Shore based Emergency Overflow
(A)	Abandoned

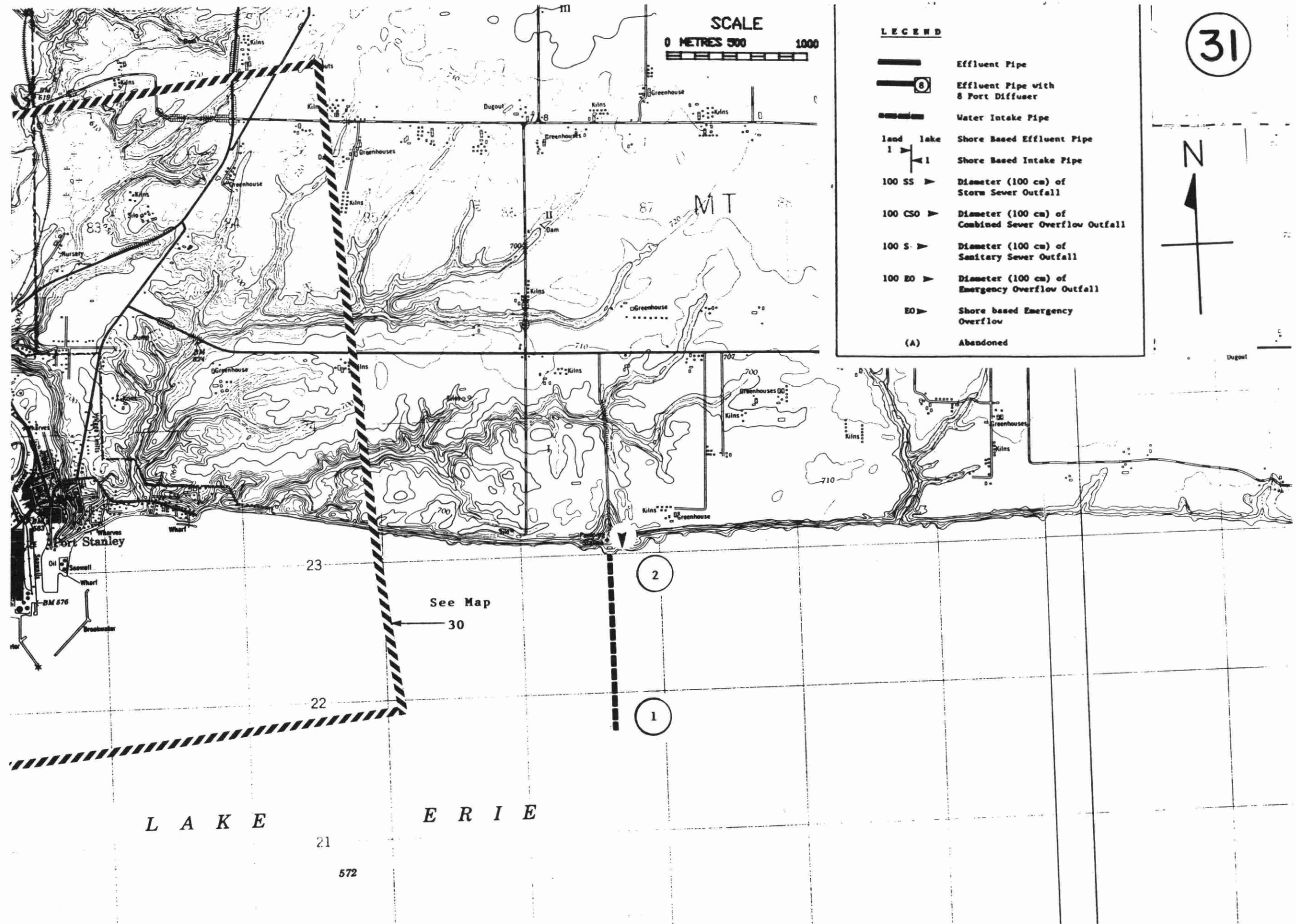




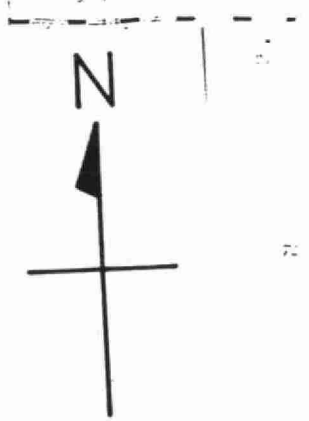
Name	Port Stanley STP	Port Stanley WTP					
Intake/Outfall	Outfall	Intake					
OMIS/IMIS No.	110001373	220002459					
Structure No.	1	2					
Map Number	30	30					
Operating Authority	MOE	MUN POC					
Location	Port Stanley	Port Stanley					
Supplier/Receiver	Kettle Creek	Lake Erie					
Point of Discharge	River Mouth						
Terminal Basin	Lake Erie	Lake Erie					
Activity	Municipal Sewage Treatment	Municipal Water Treatment					
Process Type	Secondary Treatment	Physical and Chemical Treatment					
Supply/Discharge Type	Batch (Seasonal)	Continuous					
Treatment Type	Conventional Lagoon P Removal-Seasonal	Filtration, Sedimentation Coagulation Chlorination Fluoridation					
Comments							
Design Flow (1000m3/day)	1.50	6.48					
Mean Annual Flow (1000m3/day)	1.26	1.40					
Pipe length from shore (m)	0.00	578.00					
Pipe Diameter (cm)	5.50	30.00					
Water Depth at end of pipe (m)	0.00	8.00					
Water depth above end of pipe (m)	0.00	4.00					
Diffuser	NO						
Number of ports							

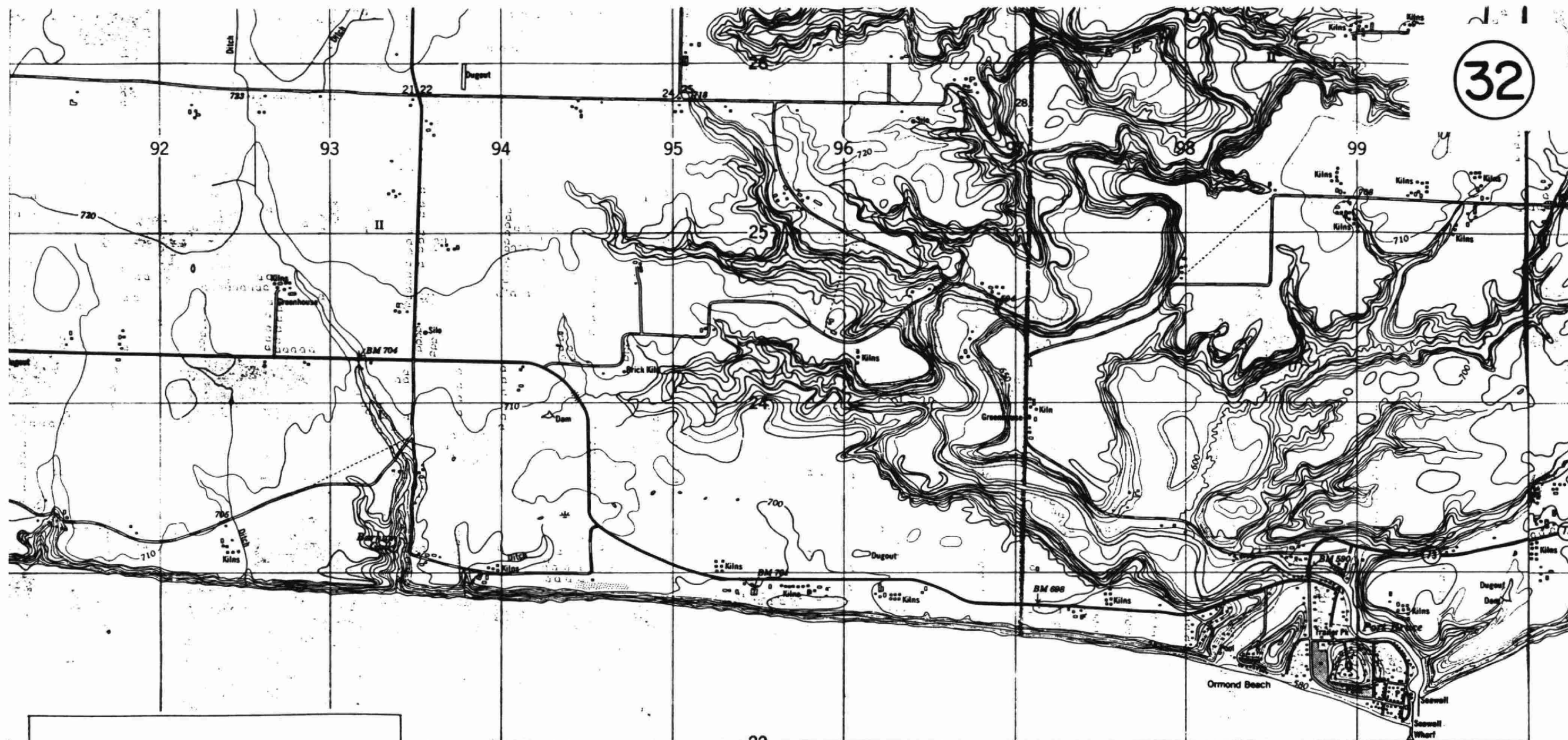


Name	Elgin Area WSS	Elgin Area WSS				
Intake/Outfall	Intake	Outfall				
UMIS/IMIS No.	210000871	210000871				
Structure No.	1	2				
Map Number	31	31				
Operating Authority	MOE	MOE				
Location	Port Stanley	Port Stanley				
Supplier/Receiver	Lake Erie	Lake Erie				
Point of Discharge		Shore				
Terminal Basin	Lake Erie	Lake Erie				
Activity	Municipal Water Treatment	Municipal Water Treatment				
Process Type	Physical and Chemical Treatment	Physical and Chemical Treatment				
Supply/Discharge Type	Continuous	Batch				
Treatment Type	Filtration, Coagulation Chlorination Fluoridation	None				
Comments		Filter Backwash effluent				
Design Flow (1000m3/day)	45.46	NA				
Mean Annual Flow (1000m3/day)	20.00	NA				
Pipe length from shore (m)	1250.00	15.00				
Pipe Diameter (cm)	152.40	91.00				
Water Depth at end of pipe (m)	10.20	6.10				
Water depth above end of pipe (m)	9.60	4.90				
Diffuser		NO				
Number of ports						

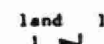
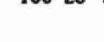
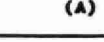


31





LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  Diameter (100 cm) of Storm Sewer Outfall
-  Diameter (100 cm) of Combined Sewer Overflow Outfall
-  Diameter (100 cm) of Sanitary Sewer Outfall
-  Diameter (100 cm) of Emergency Overflow Outfall
-  Shore based Emergency Overflow
-  Abandoned

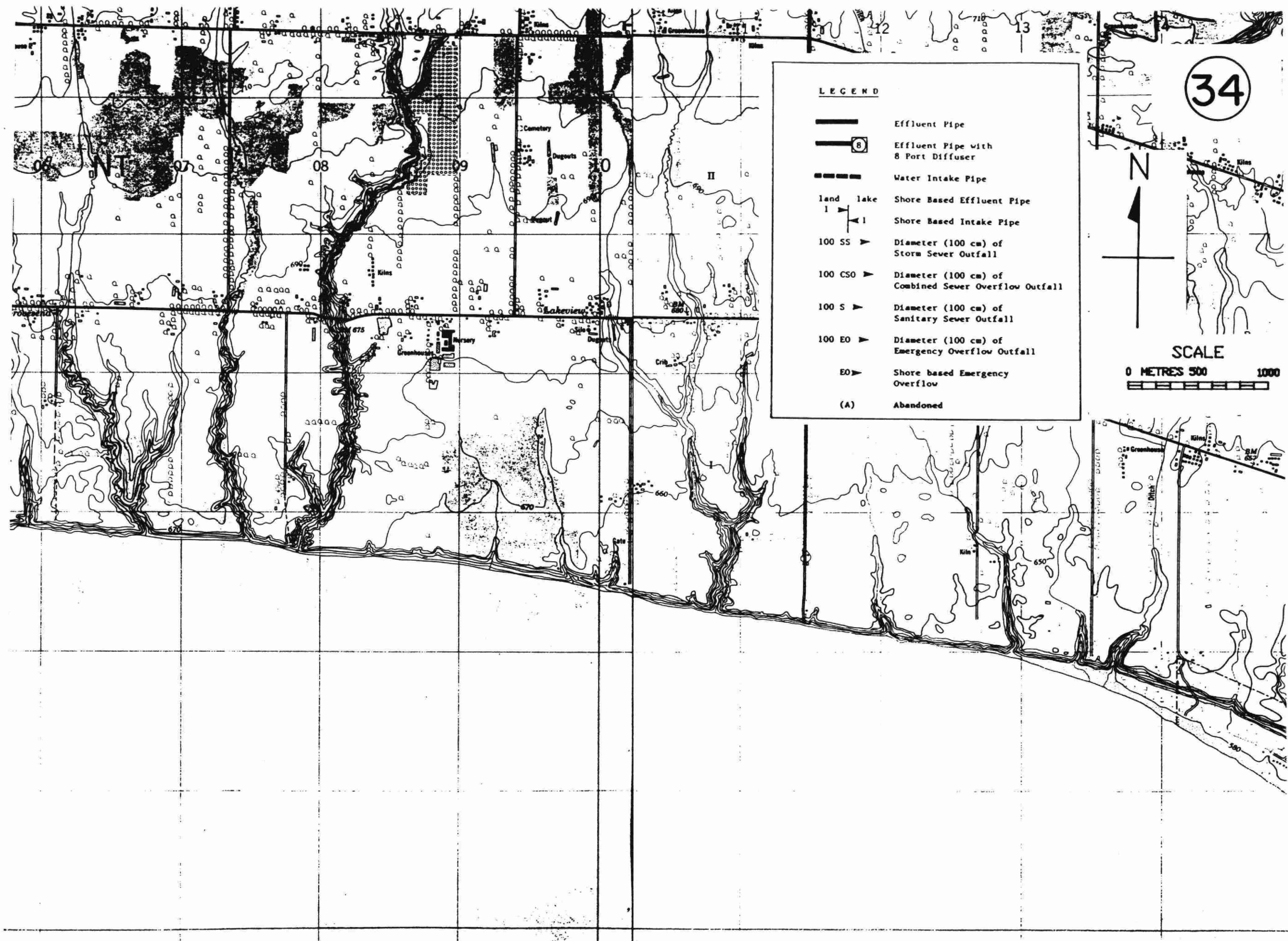


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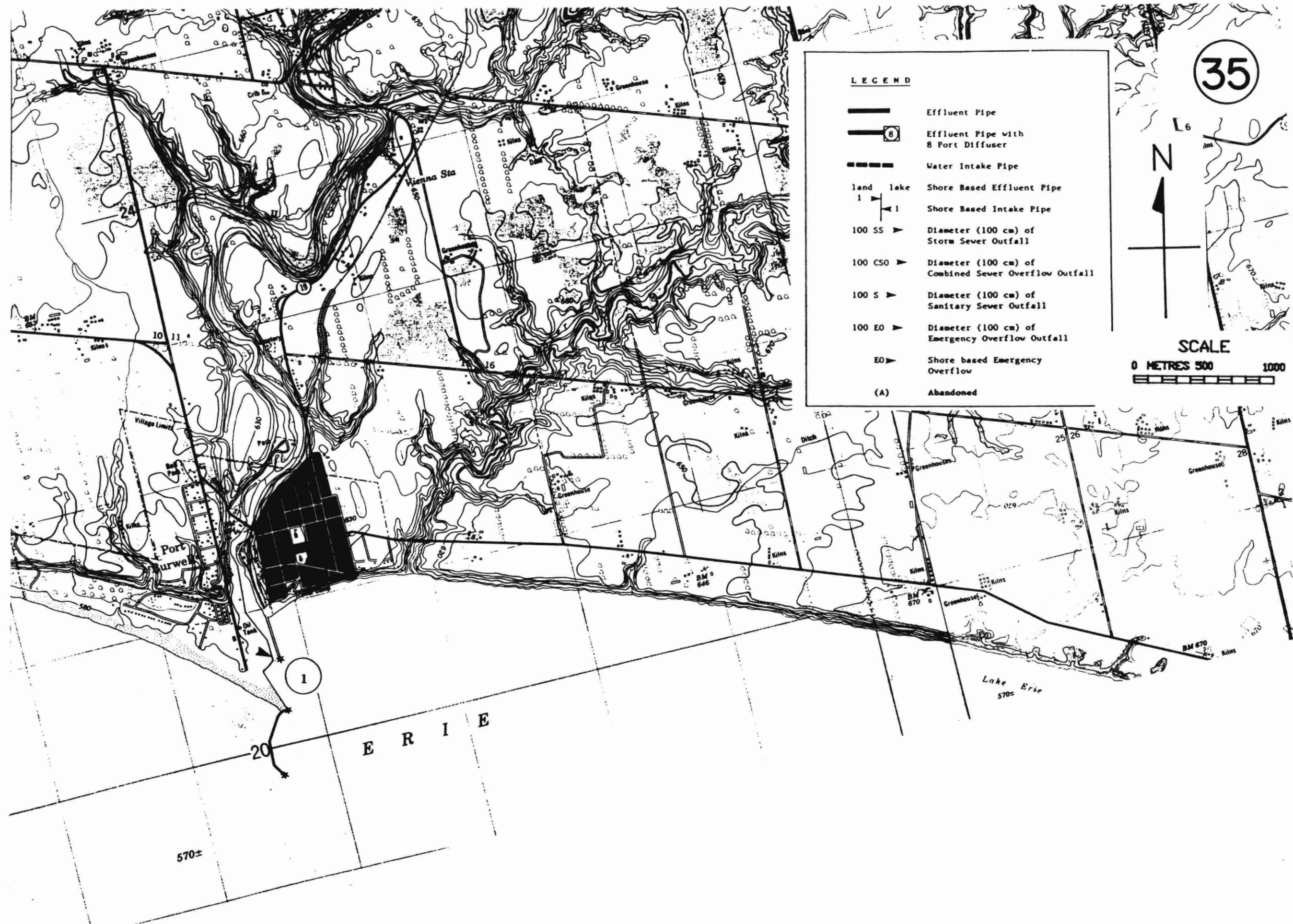
22

21
E R I E

20



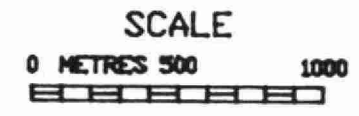
Name	Port Burwell WPCP						
Intake/Outfall	Outfall						
UMIS/INIS No.	110001319						
Structure No.	1						
Map Number	35						
Operating Authority	MOR						
Location	Port Burwell						
Supplier/Receiver	Big Otter Creek						
Point of Discharge	River Mouth						
Terminal Basin	Lake Erie						
Activity	Municipal Sewage Treatment						
Process Type	Secondary Treatment						
Supply/Discharge Type	Continuous						
Treatment Type	Extended Aeration P Removal-Continuous Sludge Holding Tank UV disinfection						
Comments							
Design Flow (1000m3/day)	0.53						
Mean Annual Flow (1000m3/day)	0.26						
Pipe length from shore (m)	NA						
Pipe Diameter (cm)	37.50						
Water Depth at end of pipe (m)	0.50						
Water depth above end of pipe (m)	3.30						
Diffuser	YES						
Number of ports	2						

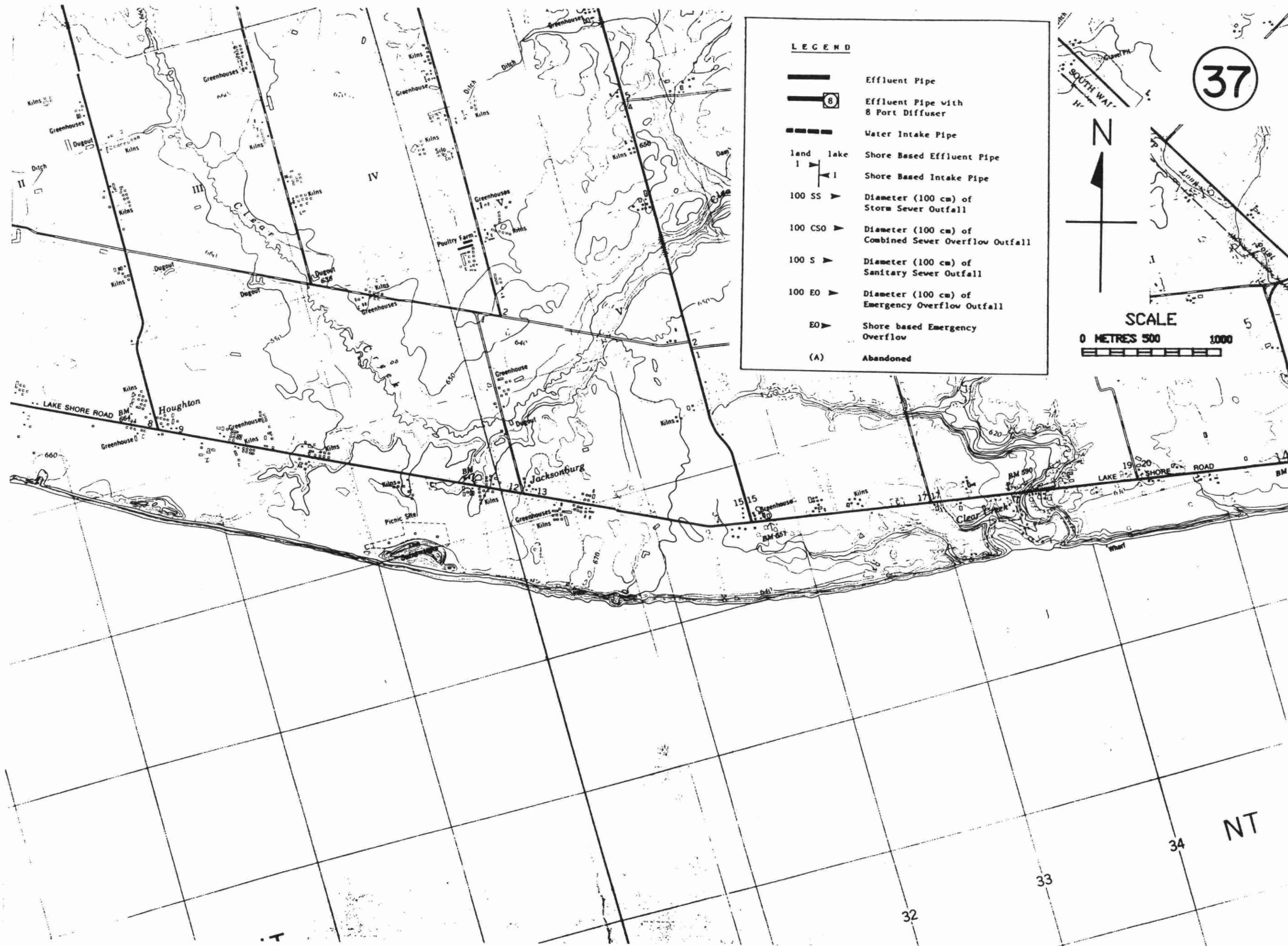




LEGEND

	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
	Diameter (100 cm) of Storm Sewer Outfall
	Diameter (100 cm) of Combined Sewer Overflow Outfall
	Diameter (100 cm) of Sanitary Sewer Outfall
	Diameter (100 cm) of Emergency Overflow Outfall
	Shore based Emergency Overflow
	Abandoned





LEGEND

- Effluent Pipe
- 8 Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake Shore Based Effluent Pipe
- 1 1 Shore Based Intake Pipe
- 100 SS > Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S > Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO > Diameter (100 cm) of Emergency Overflow Outfall
- EO > Shore based Emergency Overflow
- (A) Abandoned

SCALE

0 METRES 500 1000

37

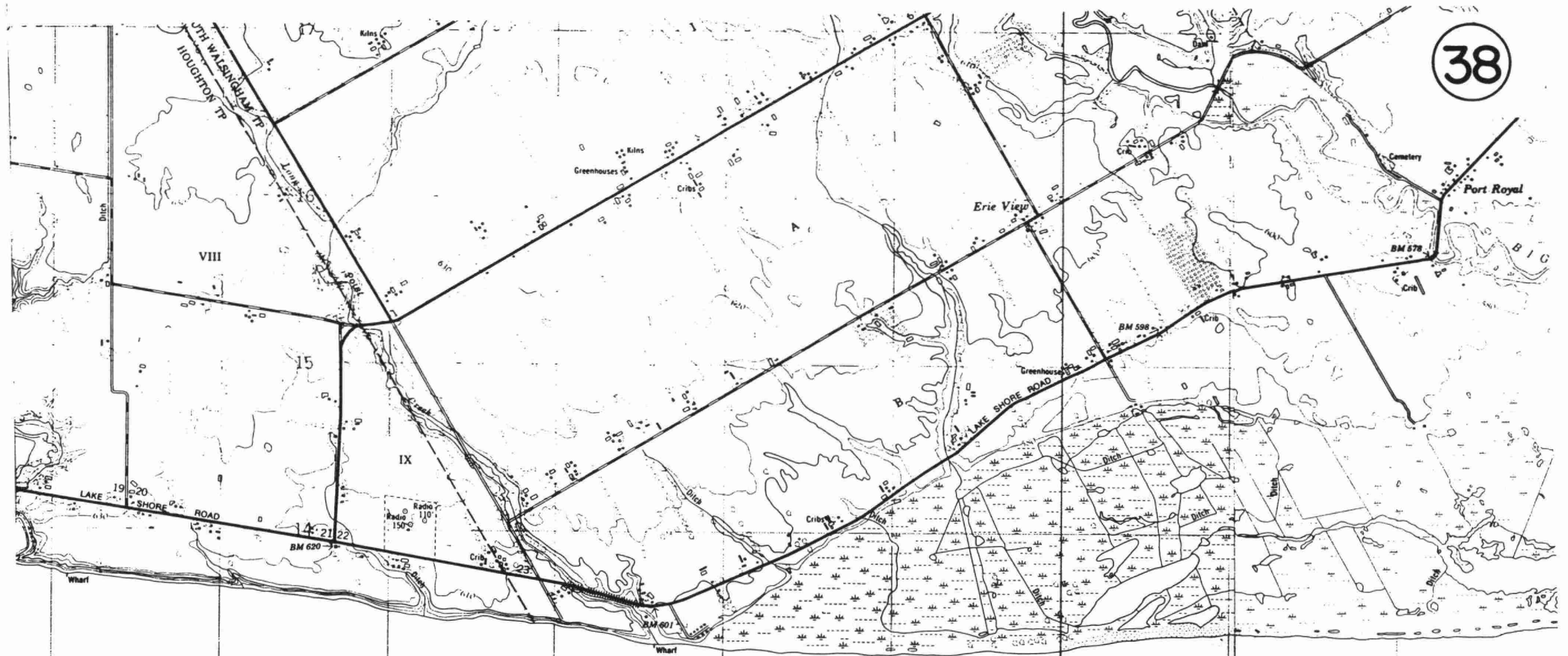


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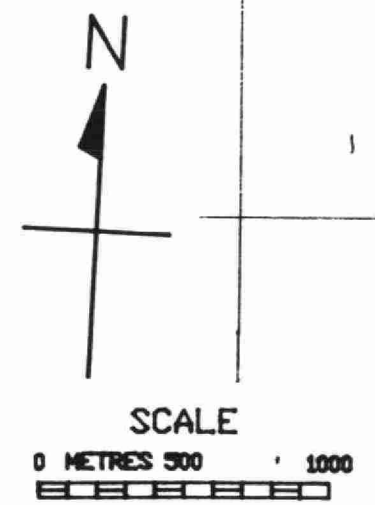
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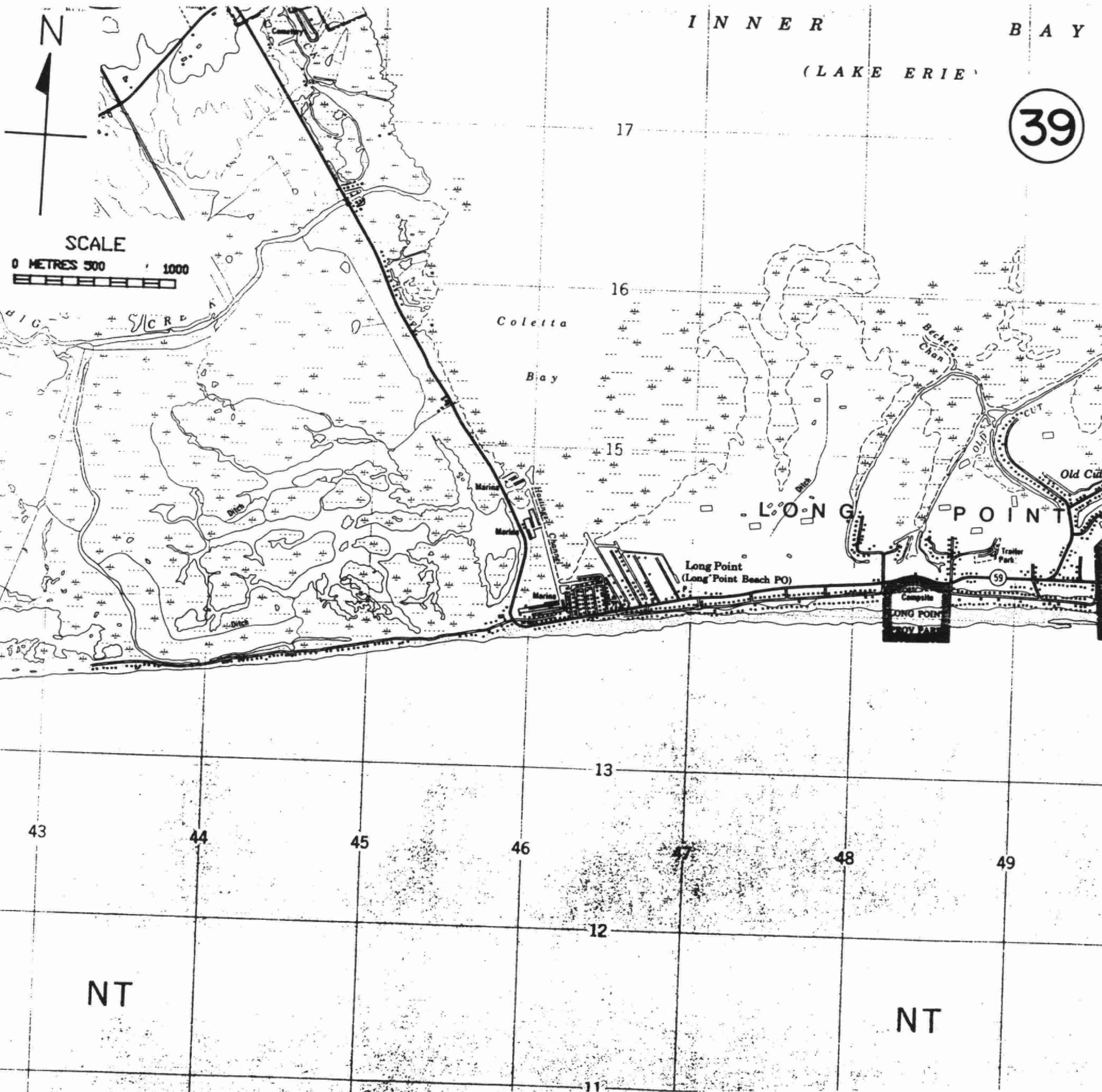
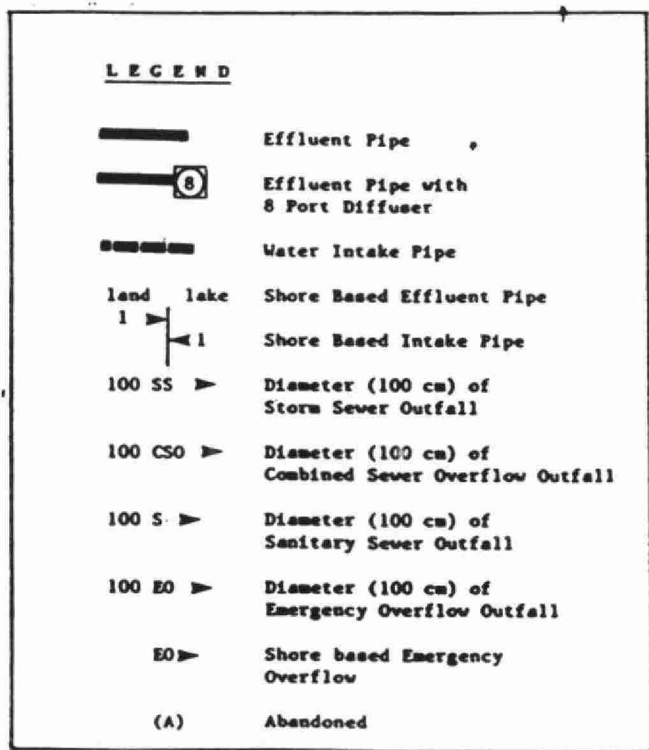
34



LEGEND

	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
	Diameter (100 cm) of Storm Sewer Outfall
	Diameter (100 cm) of Combined Sewer Overflow Outfall
	Diameter (100 cm) of Sanitary Sewer Outfall
	Diameter (100 cm) of Emergency Overflow Outfall
	Shore based Emergency Overflow
	Abandoned





B A Y

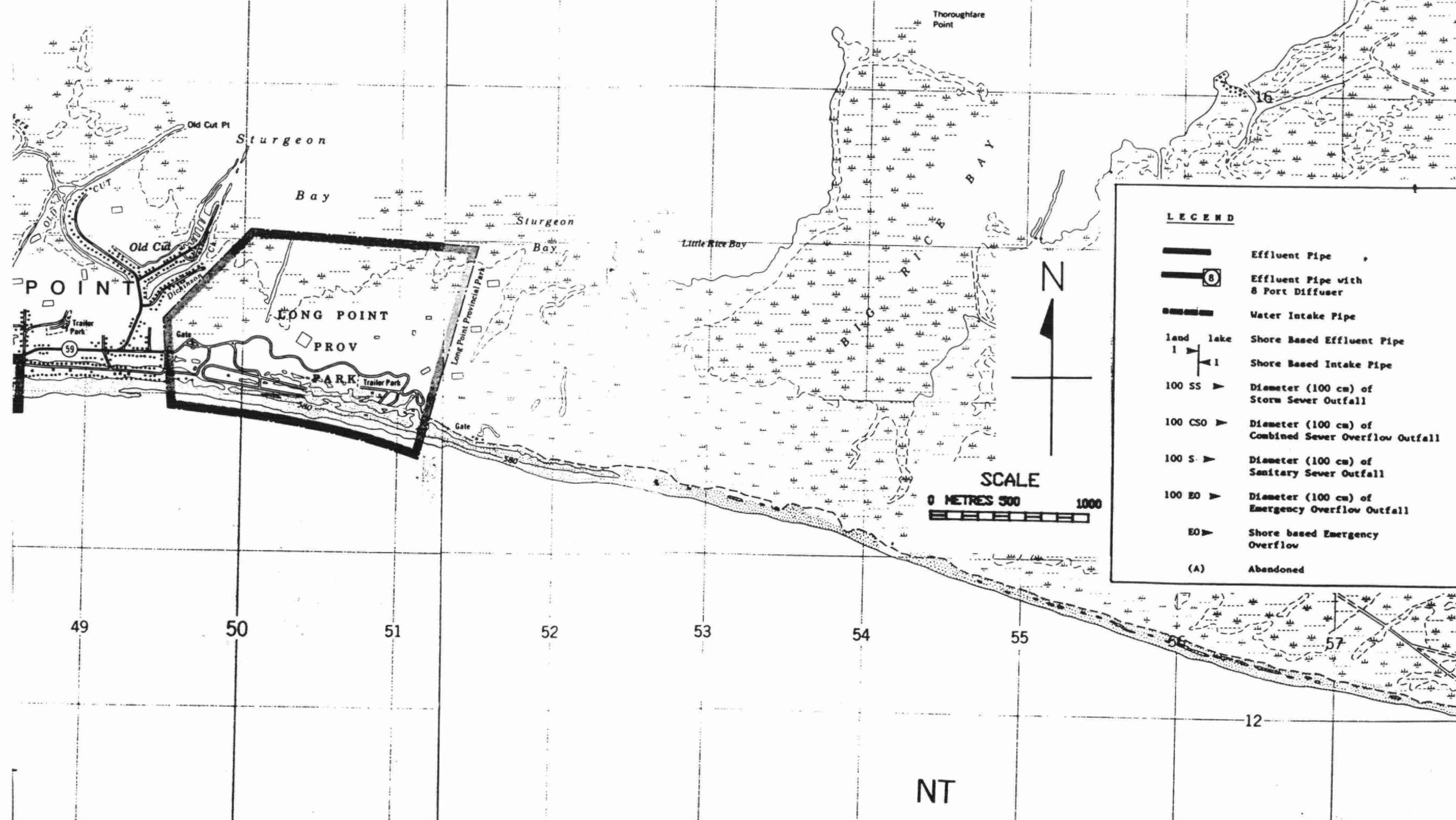
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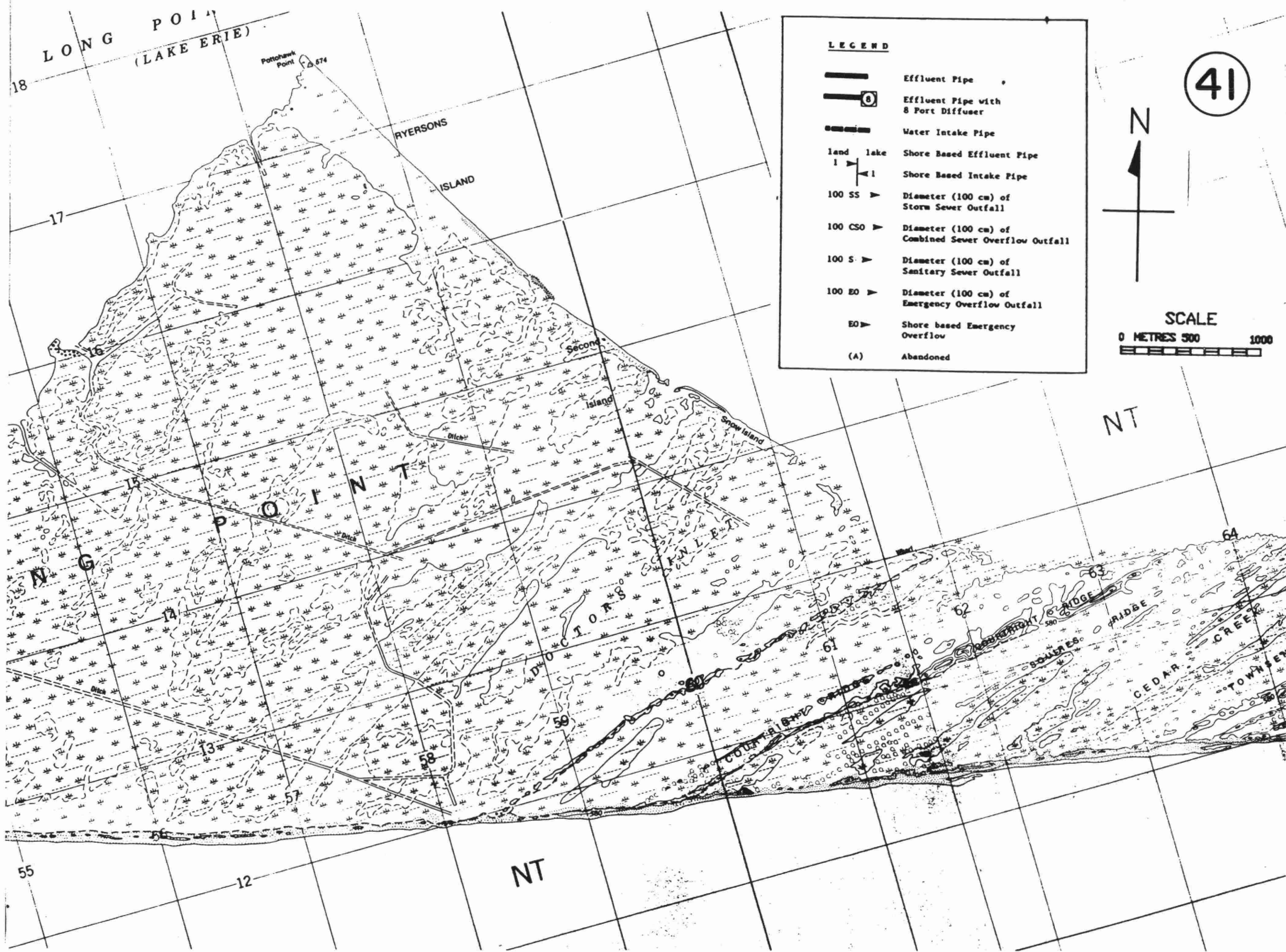
I N N E R

B A Y

-17-

(40





LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  Diameter (100 cm) of Storm Sewer Outfall
-  Diameter (100 cm) of Combined Sewer Overflow Outfall
-  Diameter (100 cm) of Sanitary Sewer Outfall
-  Diameter (100 cm) of Emergency Overflow Outfall
-  Shore based Emergency Overflow
-  Abandoned

41



SCALE

0 METRES 500 1000

LEGEND

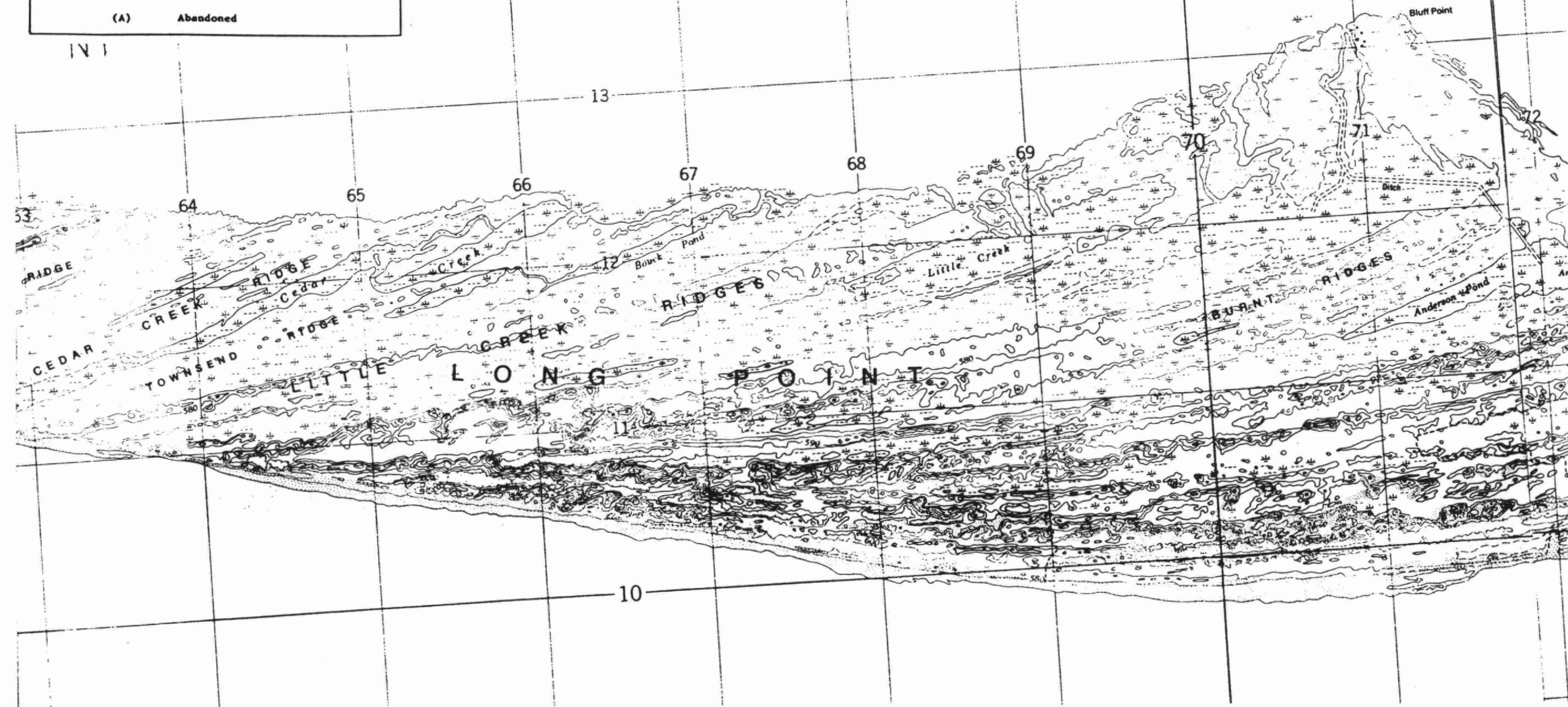
	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS ▶	Diameter (100 cm) of Storm Sewer Outfall
100 CSO ▶	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S ▶	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO ▶	Diameter (100 cm) of Emergency Overflow Outfall
EO ▶	Shore based Emergency Overflow
(A)	Abandoned

K E E R I E)

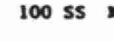
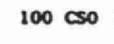
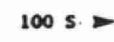
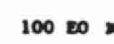
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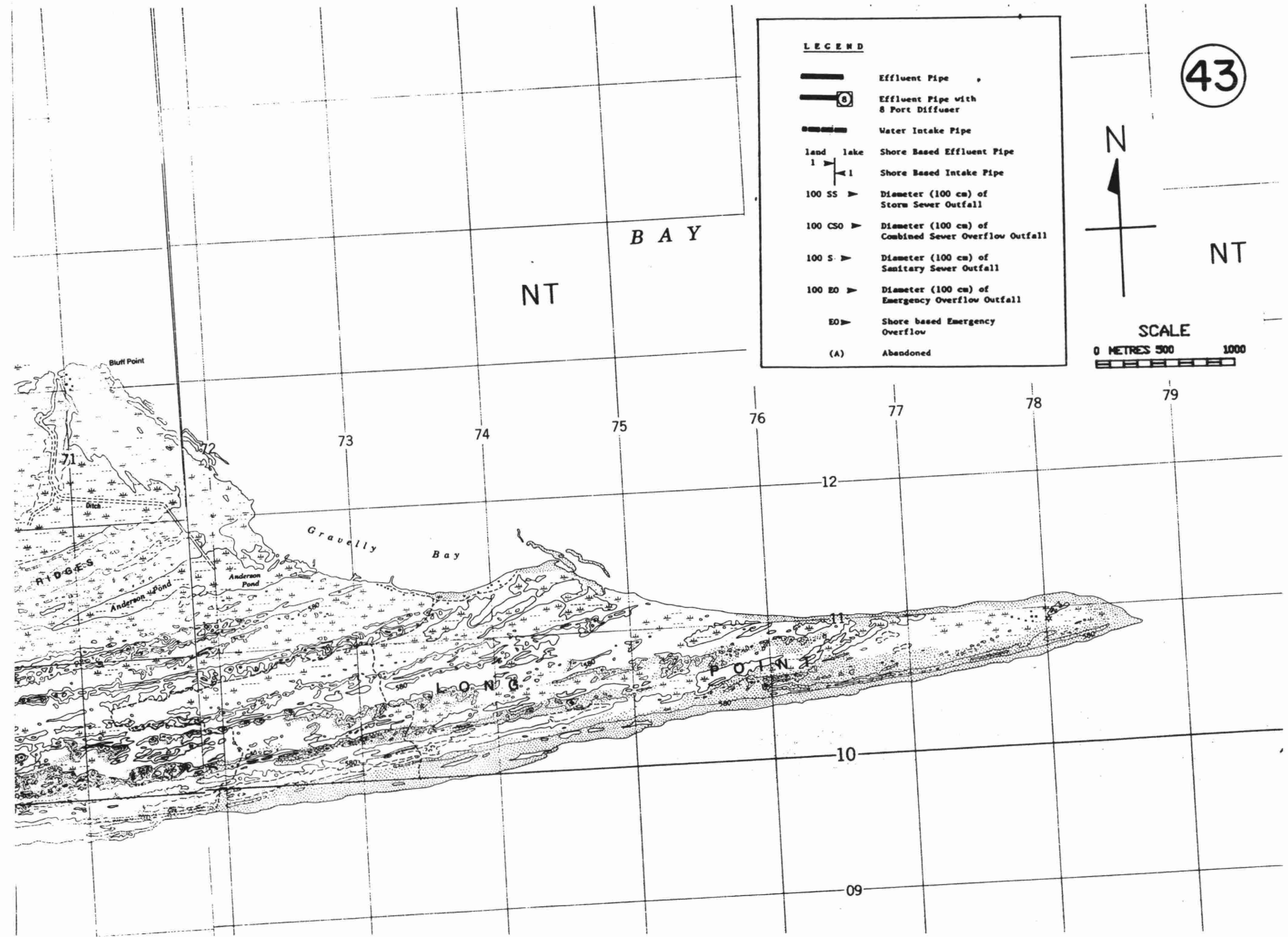
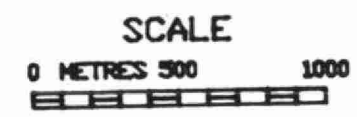
SCALE

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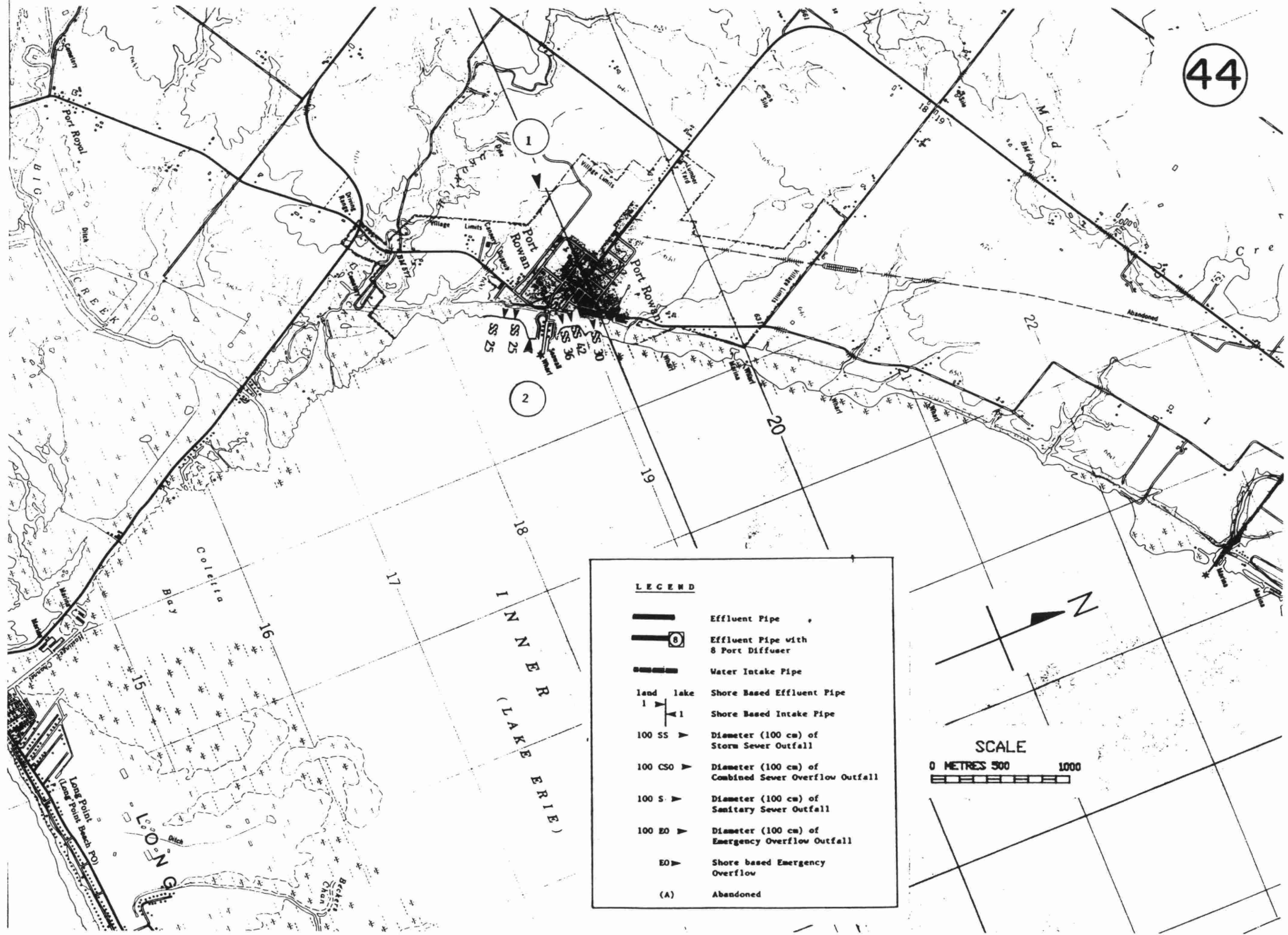



LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  100 SS > Diameter (100 cm) of Storm Sewer Outfall
-  100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
-  100 S > Diameter (100 cm) of Sanitary Sewer Outfall
-  100 EO > Diameter (100 cm) of Emergency Overflow Outfall
-  EO > Shore based Emergency Overflow
-  (A) Abandoned

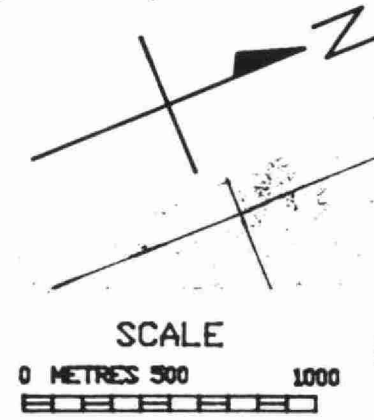


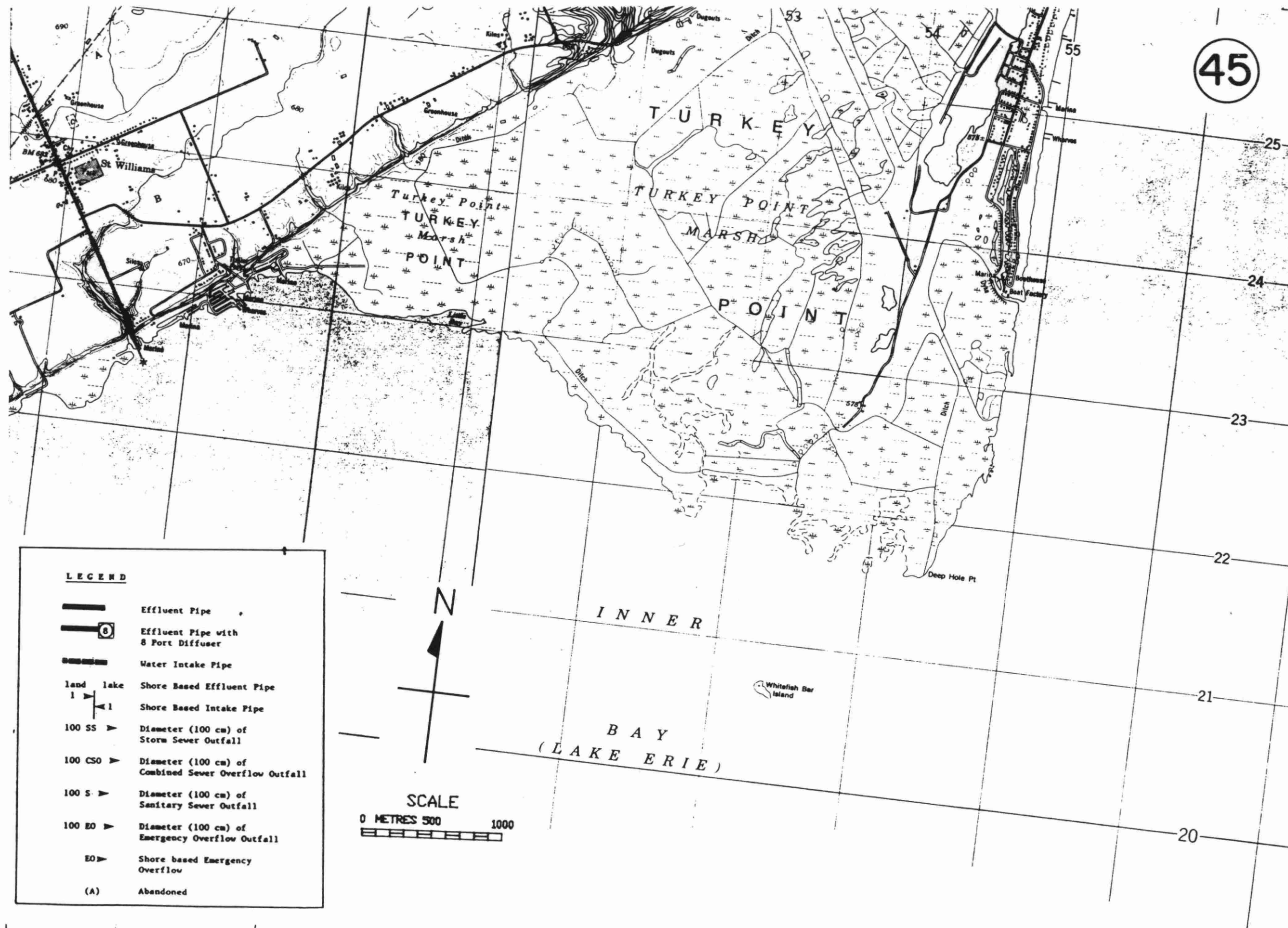
Name	Port Rowan WPCP	Port Rowan WTP					
Intake/Outfall	Outfall	Intake					
UMIS/IMIS No.	110001113	220003350					
Structure No.	1	2					
Map Number	44	44					
Operating Authority	MOE	Haldimand Norfolk RM					
Location	Port Rowan	Port Rowan					
Supplier/Receiver	Derdich Creek	Inner Bay					
Point of Discharge	River Mouth						
Terminal Basin	Lake Erie	Lake Erie					
Activity	Municipal Sewage Treatment	Municipal Water Treatment					
Process Type	Secondary Treatment	Physical and Chemical Treatment					
Supply/Discharge Type	Batch	Continuous					
Treatment Type	Conventional Lagoon P Removal when necessary	Filtration, Coagulation Sand Filters Clarifier					
Comments							
Design Flow (1000m3/day)	0.73	1.57					
Mean Annual Flow (1000m3/day)	0.27	0.42					
Pipe length from shore (m)	NA	NA					
Pipe Diameter (cm)	NA	254.00					
Water Depth at end of pipe (m)	NA	2.50					
Water depth above end of pipe (m)	NA	NA					
Diffuser	NO						
Number of ports							



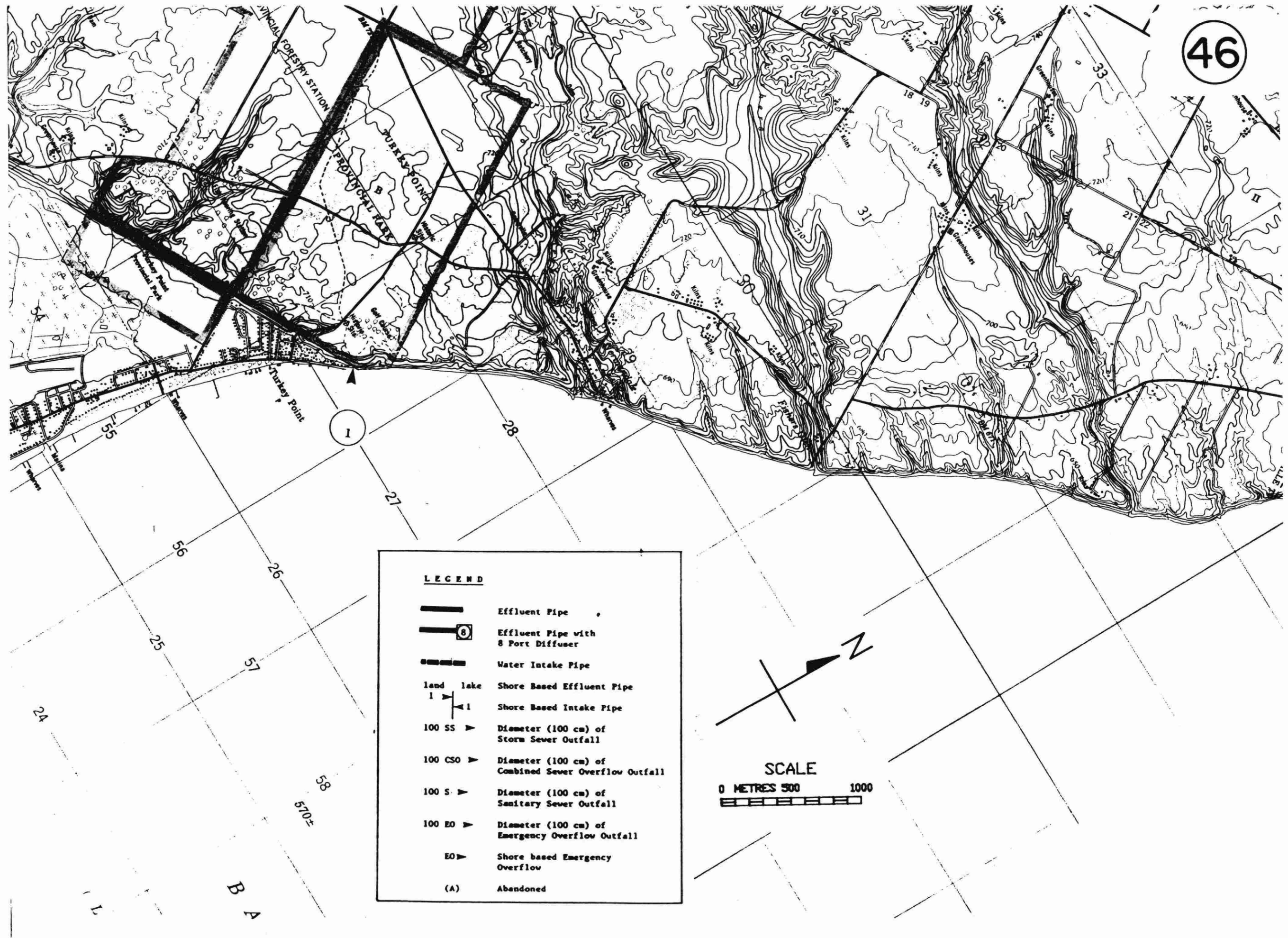
LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- (A) Abandoned

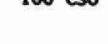
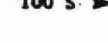
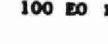
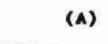


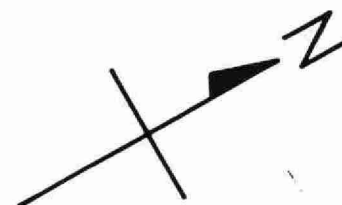


Name	Turkey Point Prov. Park					
Intake/Outfall	Intake					
OMIS/IMIS No.	NA					
Structure No.	1					
Map Number	46					
Operating Authority	MNR					
Location	Turkey Point					
Supplier/Receiver	Lake Erie					
Point of Discharge						
Terminal Basin	Lake Erie					
Activity	Park Water Treatment					
Process Type	NA					
Supply/Discharge Type	Batch (Seasonal)					
Treatment Type	None					
Comments	Water used for irrigation purposes only					
Design Flow (1000m3/day)	1.64					
Mean Annual Flow (1000m3/day)	NA					
Pipe length from shore (m)	33.52					
Pipe Diameter (cm)	15.00					
Water Depth at end of pipe (m)	3.04					
Water depth above end of pipe (m)	3.04					
Diffuser						
Number of ports						



LEGEND

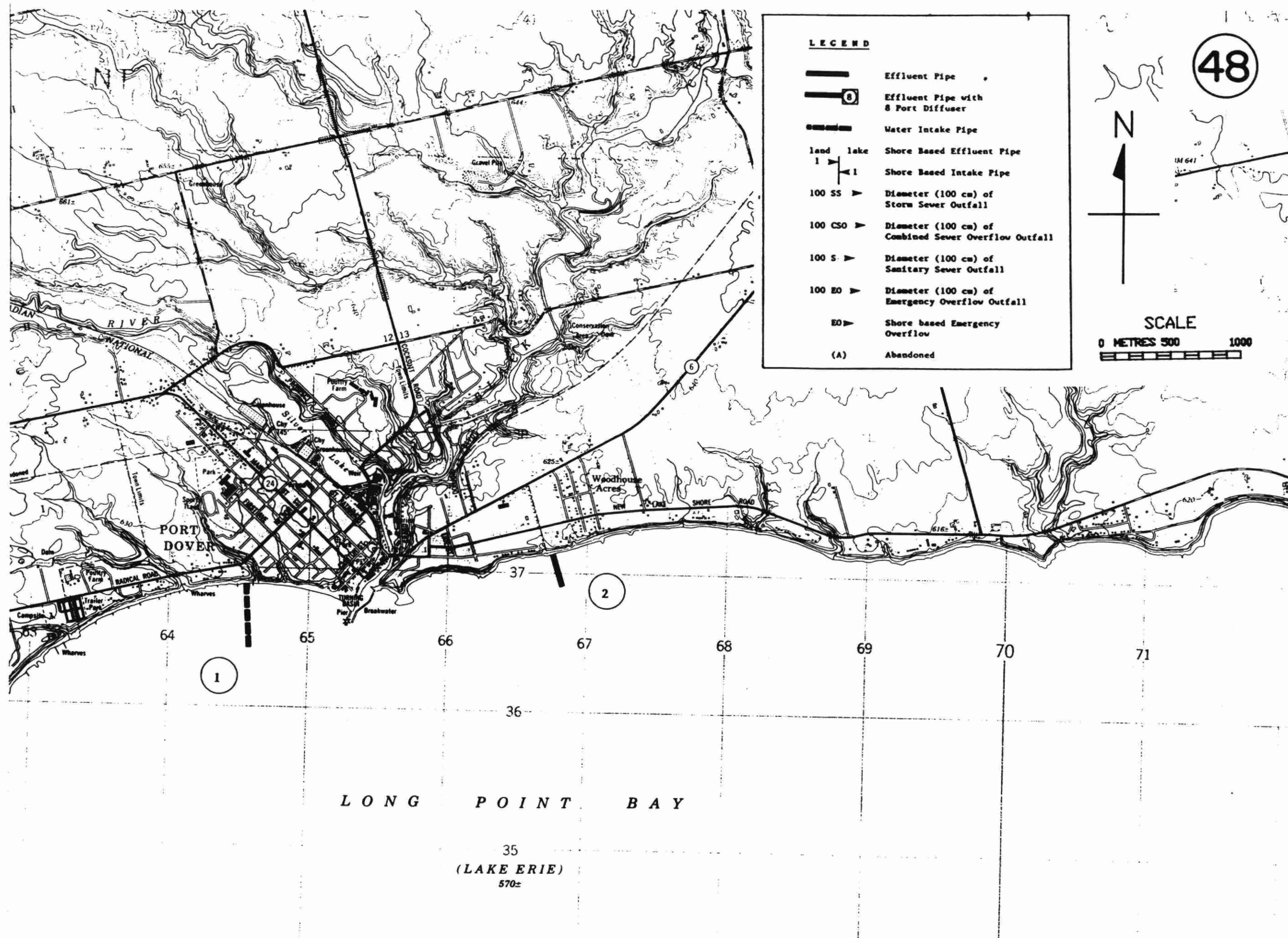
-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  Diameter (100 cm) of Storm Sewer Outfall
-  Diameter (100 cm) of Combined Sewer Overflow Outfall
-  Diameter (100 cm) of Sanitary Sewer Outfall
-  Diameter (100 cm) of Emergency Overflow Outfall
-  Shore based Emergency Overflow
-  (A) Abandoned



SCALE
0 METRES 500 1000

	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS ➤	Diameter (100 cm) of Storm Sever Outfall
100 CSO ➤	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S ➤	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO ➤	Diameter (100 cm) of Emergency Overflow Outfall
EO ➤	Shore based Emergency Overflow
(A)	Abandoned

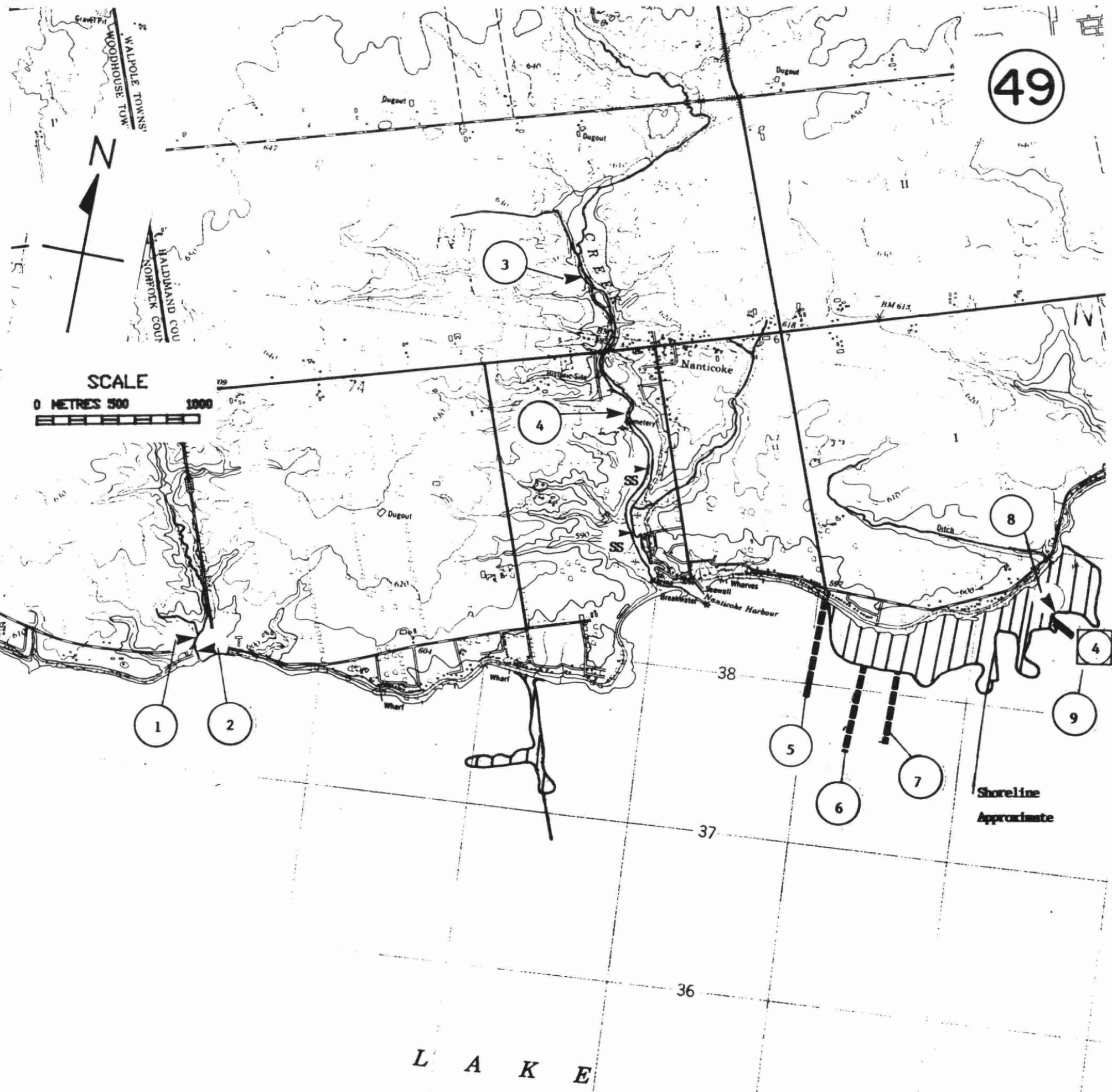
Name	Port Dover WTP	Port Dover WPCP					
Intake/Outfall	Intake	Outfall					
UMIS/IMIS No.	220000399	110000604					
Structure No.	1	2					
Map Number	48	48					
Operating Authority	Haldimand Norfolk RM	MOE					
Location	Port Dover	Port Dover					
Supplier/Receiver	Lake Erie	Lake Erie					
Point of Discharge		Offshore					
Terminal Basin	Lake Erie	Lake Erie					
Activity	Municipal Water Treatment	Municipal Sewage Treatment					
Process Type	Physical and Chemical Treatment	Primary Treatment					
Supply/Discharge Type	Continuous	Continuous					
Treatment Type	Filtration, Coagulation Clarifier Chlorination	Aerated Grit Chamber 3 Sedimentation Tanks Sludge holding & Chlorine P Removal-Continuous					
Comments							
Design Flow (1000m3/day)	11.36	4.09					
Mean Annual Flow (1000m3/day)	3.10	3.46					
Pipe length from shore (m)	457.00	244.00					
Pipe Diameter (cm)	50.00	61.00					
Water Depth at end of pipe (m)	4.30	NA					
Water depth above end of pipe (m)	NA	2.00					
Diffuser		NO					
Number of ports							



Name	Stelco Inc. Erie Works	Stelco Inc. Erie Works	Stelco Inc. Erie Works	Stelco Inc. Erie Works	Cen. Haldimand Norfolk WSS	Manticoke TGS	Manticoke TGS
Intake/Outfall	Outfall	Outfall	Outfall	Outfall	Intake	Intake	Intake
UNIS/IMIS No.	0000950105	0000950105	0000950105	0000950105	210001558	0001840008	0001840008
Structure No.	1	2	3	4	5	6	7
Map Number	49	49	49	49	49	49	49
Operating Authority	IND	IND	IND	IND	MOE	Ontario Hydro	Ontario Hydro
Location	Manticoke	Manticoke	Manticoke	Manticoke	Manticoke	Manticoke	Manticoke
Supplier/Receiver	Creek to Lake Erie	Creek to Lake Erie	Creek to Lake Erie	Creek to Lake Erie	Lake Erie	Lake Erie	Lake Erie
Point of Discharge	River Mouth	River Mouth	River Mouth	River Mouth			
Terminal Basin	Lake Erie	Lake Erie	Lake Erie	Lake Erie	Lake Erie	Lake Erie	Lake Erie
Activity	Integrated Steel Mill	Integrated Steel Mill	Integrated Steel Mfg.	Integrated Steel Mfg.	Municipal Water Treatment	Electrical Generating Facility	Electrical Generating Facility
Process Type	Coke Ovens, Blast Furnace	Coke Ovens, Blast Furnace	Coke Ovens, Blast Furnace	Coke Ovens, Blast Furnace	Physical and Chemical	Coal Fired Thermal	Coal Fired Thermal
	Oxygen Furnace, Hot Strip	Oxygen Furnace, Hot Strip	Oxygen Furnace, Hot Strip	Oxygen Furnace, Hot Strip	Treatment	Electric Plant	Electric Plant
	Mill	Mill	Mill	Mill			
Supply/Discharge Type	Batch	Continuous	Batch	Batch	Continuous	Continuous	Continuous
Treatment Type	Stabilization Lagoon	Alkaline Break Point	None	None	Screening, Coagulation	Bar Racks & Vertical	Bar Racks & Vertical
		Chlorination			Sedimentation, Filtration	Travelling Screens	Travelling Screens
					Chlorination		
Comments			Discharge from pond 1 stormwater only	Discharge from pond 2 stormwater only		Information for Units 1-4	Information for Units 5-8
Design Flow (1000m3/day)	1.10	52.00	NA	NA	341.00	8208.00	8208.00
Mean Annual Flow (1000m3/day)	0.95	34.00	NA	NA	26.54	9022.00	9022.00
Pipe length from shore (m)	40.00	NA	NA	NA	610.00	476.00	524.00
Pipe Diameter (cm)		60.00	45.00	45.00	670.00	6.40	6.70
Water Depth at end of pipe (m)		NA	NA	NA	12.00	21.00	20.00
Water depth above end of pipe (m)		NA	NA	NA	NA	15.00	15.00
Diffuser	NO	NO	NO	NO			
Number of ports							

LEGEND

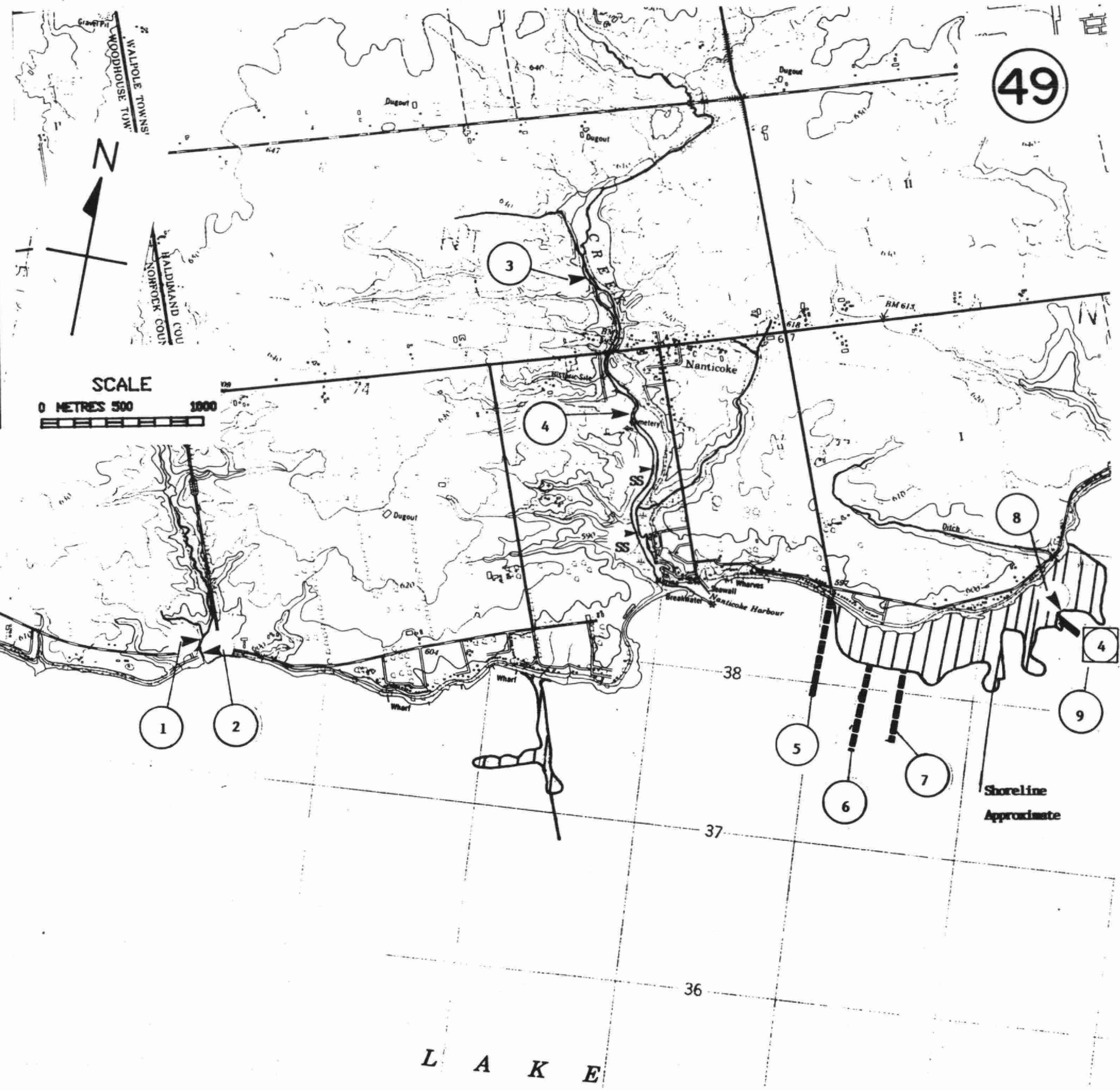
-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  100 SS > Diameter (100 cm) of Storm Sewer Outfall
-  100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
-  100 S > Diameter (100 cm) of Sanitary Sewer Outfall
-  100 EO > Diameter (100 cm) of Emergency Overflow Outfall
-  EO > Shore based Emergency Overflow
-  (A) Abandoned

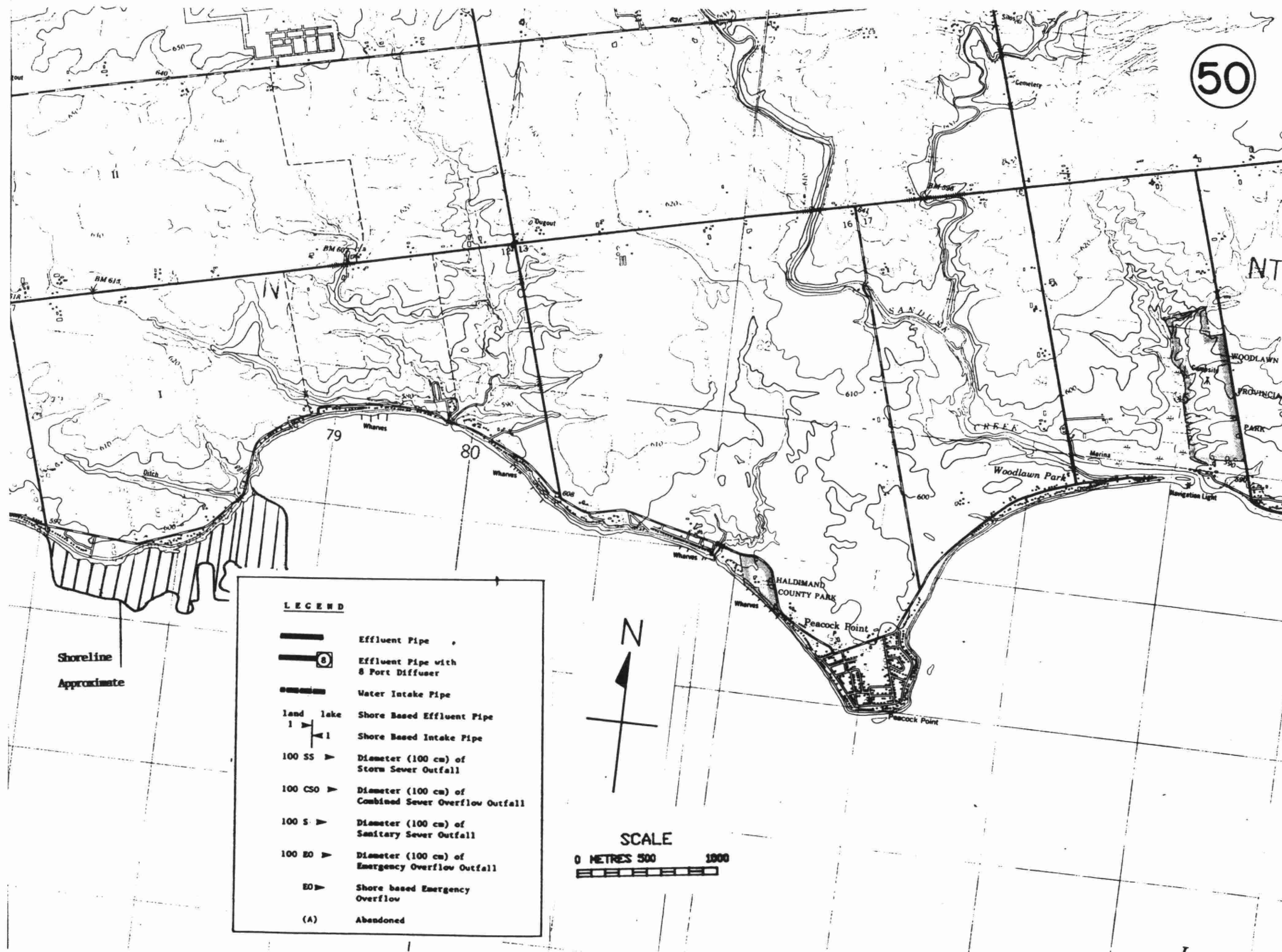


!Name	!Manticoke T6S	!Texaco Canada Inc.					
!Intake/Outfall	!Outfall	!Outfall					
!UMIS/INIS No.	!0001840008						
!Structure No.	8	9					
!Map Number	49	49					
!Operating Authority	!Ontario Hydro	!IND					
!Location	!Manticoke	!Manticoke					
!Supplier/Receiver	!Lake Erie	!Lake Erie					
!Point of Discharge	!Shore	!Offshore					
!Terminal Basin	!Lake Erie	!Lake Erie					
!Activity	!Electrical Generating !Facility	!Petroleum Refinery					
!Process Type	!Coal Fired Thermal !Electric Plant	!Crude oil converted into !numerous petroleum !products					
!Supply/Discharge Type	!Continuous	!Continuous					
!Treatment Type	!Filtration By Bar Racks !& Screens	!Oil Separation, !Equalization,Biological !Treatment, Clarification !Filtration					
!Comments	!Channel Discharge to Lake! !Shore						
!Design Flow (1000m3/day)	8208.00	13.00					
!Mean Annual Flow (1000m3/day)	9022.00	3.60					
!Pipe length from shore (m)	0.00	122.00					
!Pipe Diameter (cm)	1220.00	40.00					
!Water Depth at end of pipe (m)	6.70	6.00					
!Water depth above end of pipe (m)	0.00	6.00					
!Diffuser	NO	YES					
!Number of ports		4					

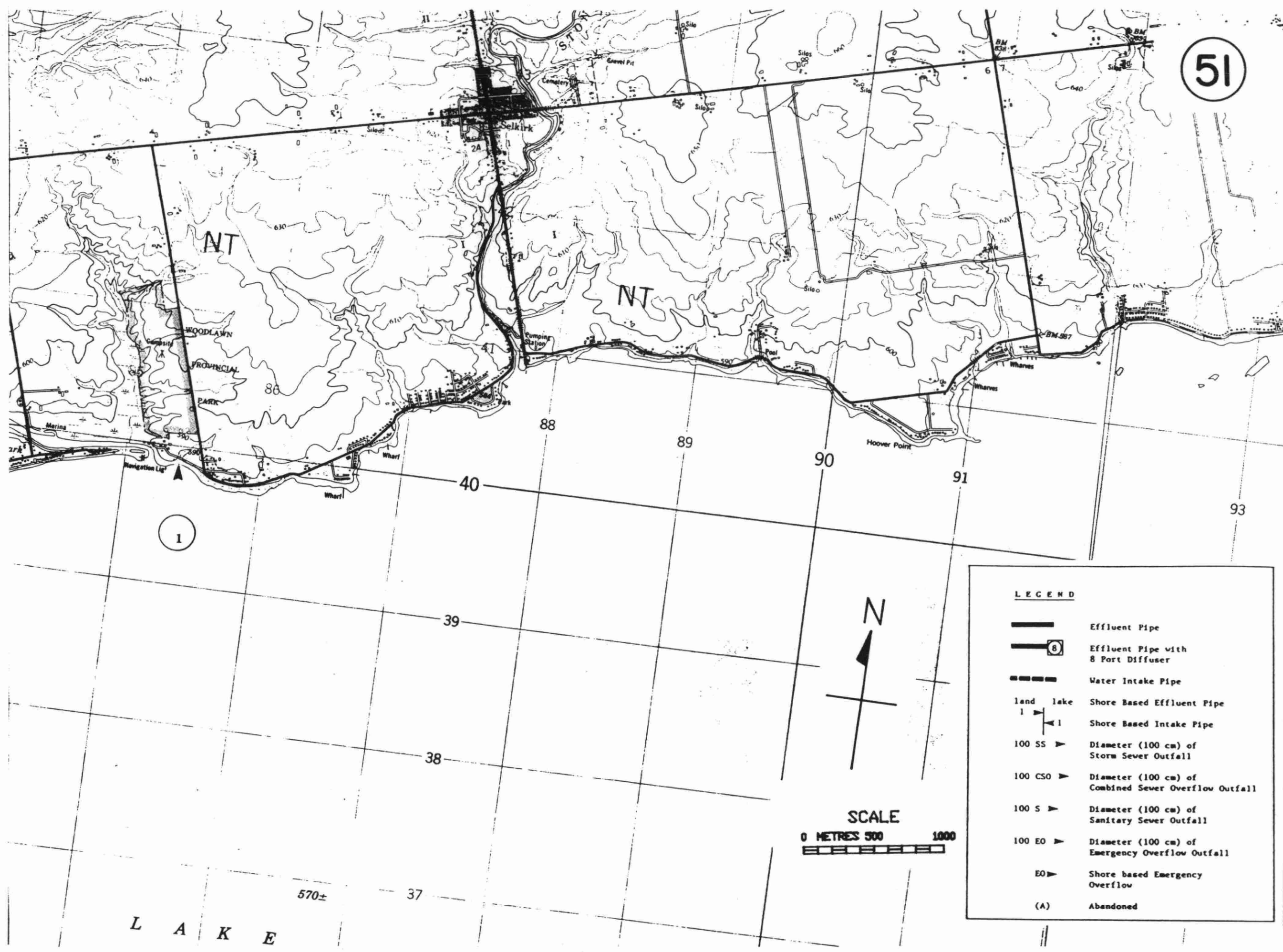
LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO Diameter (100 cm) of Emergency Overflow Outfall
- EO Shore based Emergency Overflow
- (A) Abandoned



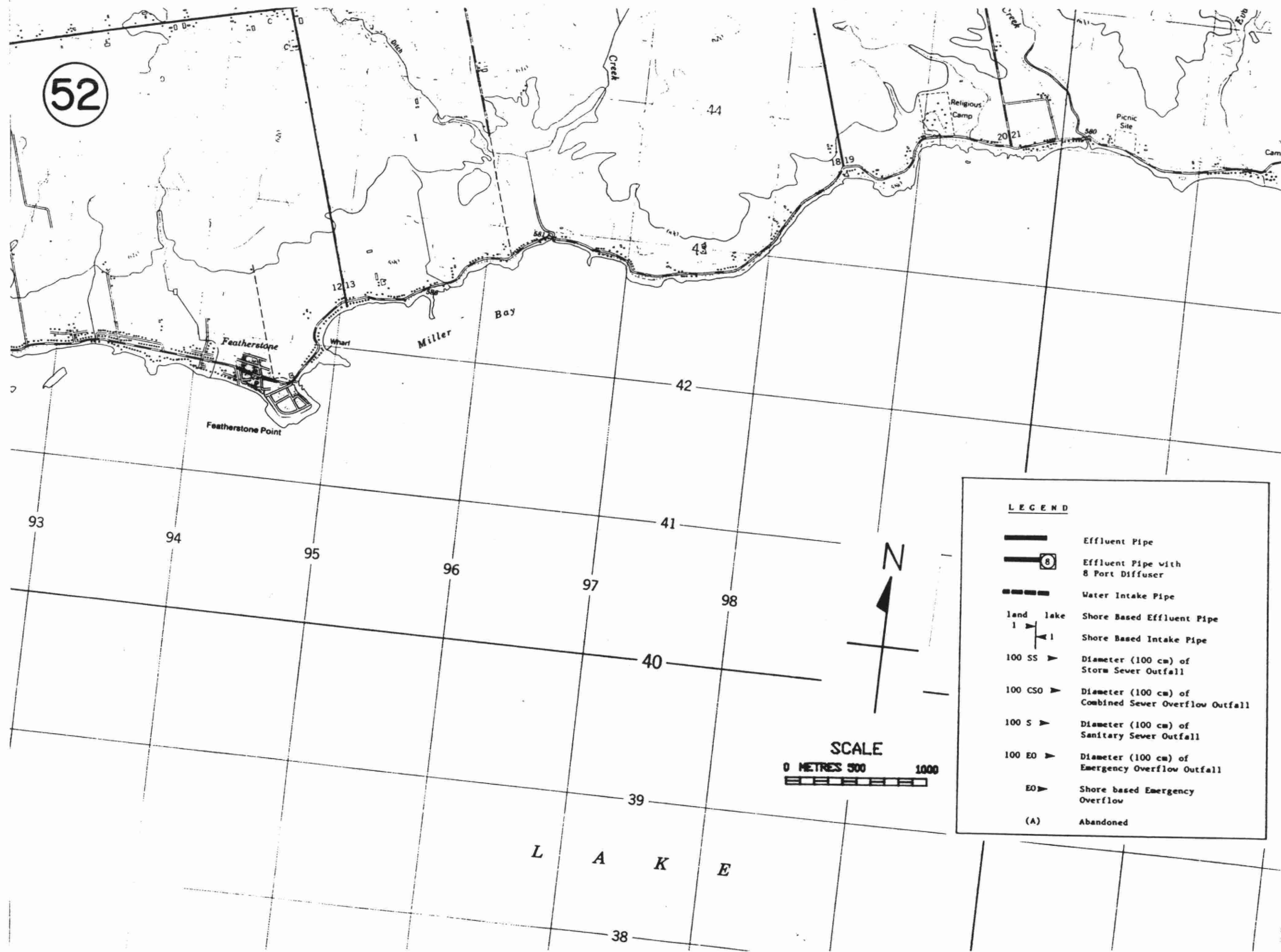


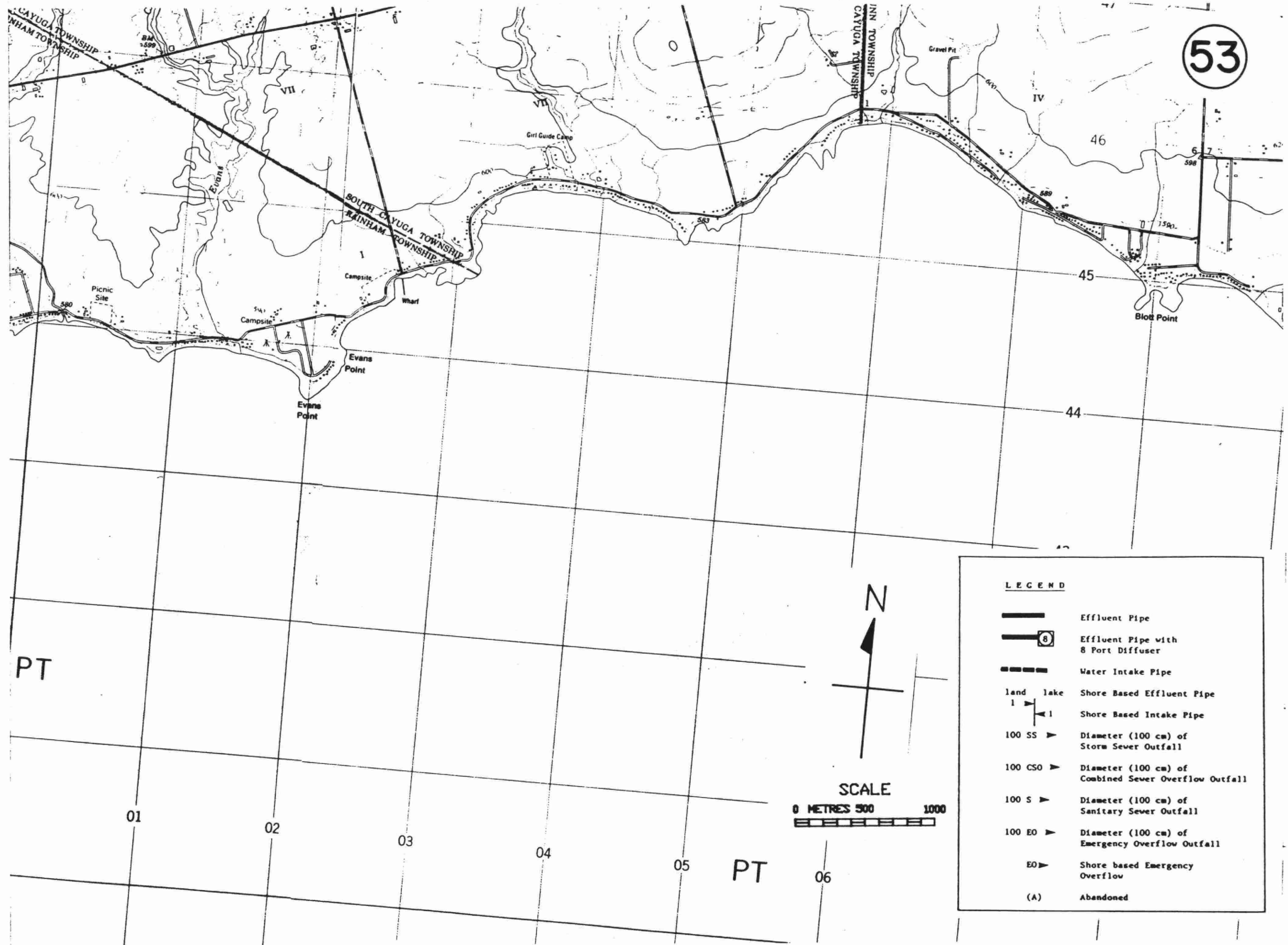
Name	Selkirk Provincial Pk.						
Intake/Outfall	Intake						
UMIS/IMIS No.	NA						
Structure No.	1						
Map Number	51						
Operating Authority	MNR						
Location	Selkirk						
Supplier/Receiver	Lake Erie						
Point of Discharge							
Terminal Basin	Lake Erie						
Activity	Park Water Treatment						
Process Type	Physical and Chemical Treatment						
Supply/Discharge Type	Seasonal						
Treatment Type	Filtration, Flocculation Chlorination						
Comments							
Design Flow (1000m3/day)	37.20						
Mean Annual Flow (1000m3/day)	NA						
Pipe length from shore (m)	45.70						
Pipe Diameter (cm)	7.50						
Water Depth at end of pipe (m)	3.00						
Water depth above end of pipe (m)	2.10						
Diffuser							
Number of ports							



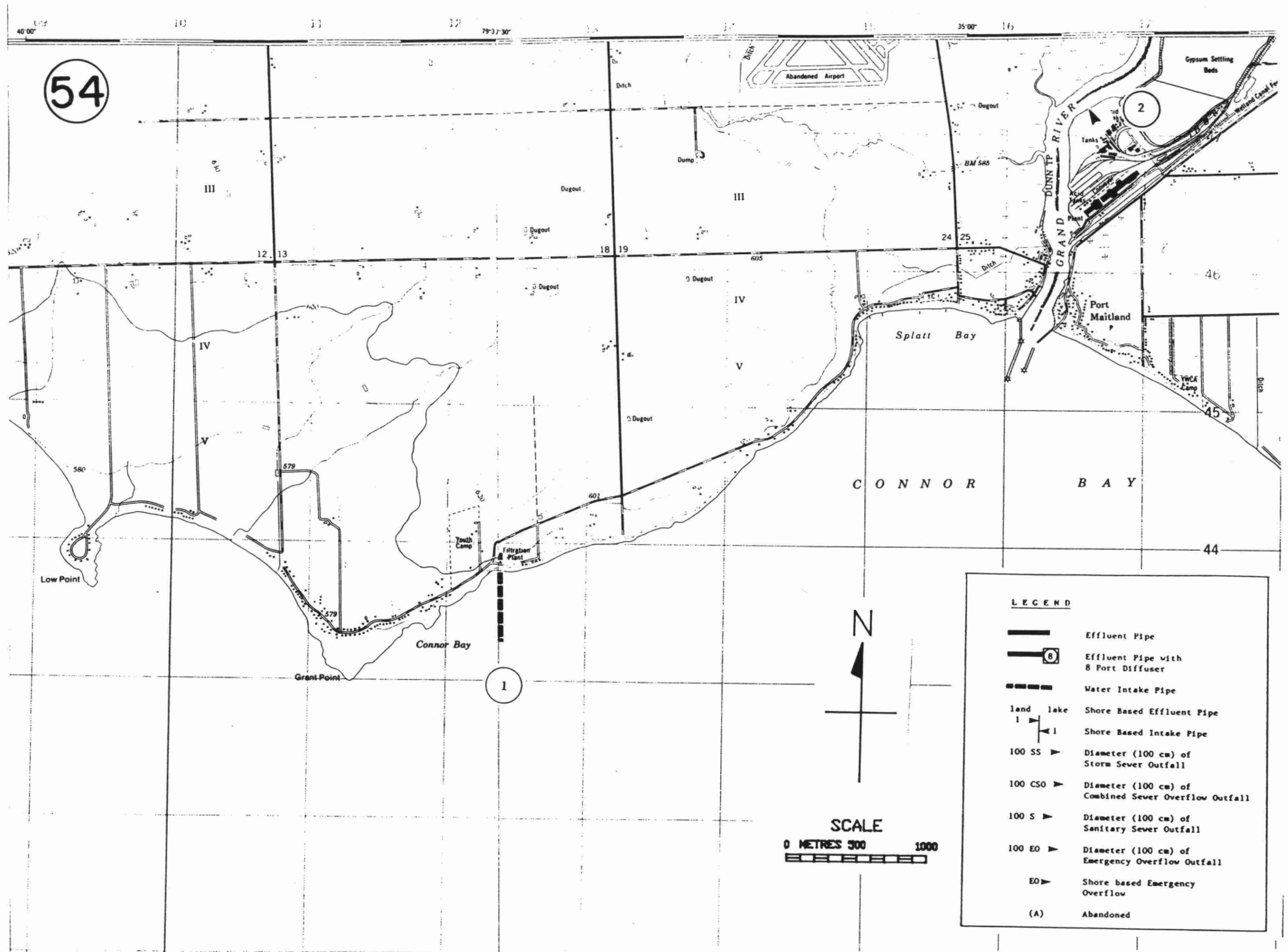
LEGEND

	Effluent Pipe
	Effluent Pipe with 8 Port Diffuser
	Water Intake Pipe
	Shore Based Effluent Pipe
	Shore Based Intake Pipe
100 SS >	Diameter (100 cm) of Storm Sewer Outfall
100 CSO >	Diameter (100 cm) of Combined Sewer Overflow Outfall
100 S >	Diameter (100 cm) of Sanitary Sewer Outfall
100 EO >	Diameter (100 cm) of Emergency Overflow Outfall
EO >	Shore based Emergency Overflow
(A)	Abandoned





Name	Dunnville WTP	International Min.& Chem.				
Intake/Outfall	Intake	Outfall				
UMIS/IMIS No.	220003555	210000274				
Structure No.	1	2				
Map Number	54	54				
Operating Authority	MOR	IND				
Location	Dunn TWP	Port Maitland				
Supplier/Receiver	Lake Erie	Grand River				
Point of Discharge		River Mouth				
Terminal Basin	Lake Erie	Lake Erie				
Activity	Municipal Water Treatment	Production of Phosphate Fertilizers				
Process Type	Physical and Chemical Treatment	NA				
Supply/Discharge Type	Continuous	Continuous				
Treatment Type	Screening, Chlorination Filtration,	Lime Treatment Chlorination				
Comments		Plant shutdown 1984, treatment system still operating.				
Design Flow (1000m3/day)	97.73	3.60				
Mean Annual Flow (1000m3/day)	13.37	2.10				
Pipe length from shore (m)	497.00	30.00				
Pipe Diameter (cm)	122.00	1.00				
Water Depth at end of pipe (m)	7.90	1.00				
Water depth above end of pipe (m)	4.40	0.00				
Diffuser		NO				
Number of ports						



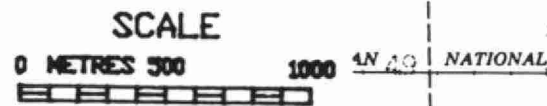
LEGEND

- Effluent Pipe
- 8 Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS > Diameter (100 cm) of Storm Sewer Outfall
- 100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
- 100 S > Diameter (100 cm) of Sanitary Sewer Outfall
- 100 EO > Diameter (100 cm) of Emergency Overflow Outfall
- EO > Shore based Emergency Overflow
- (A) Abandoned

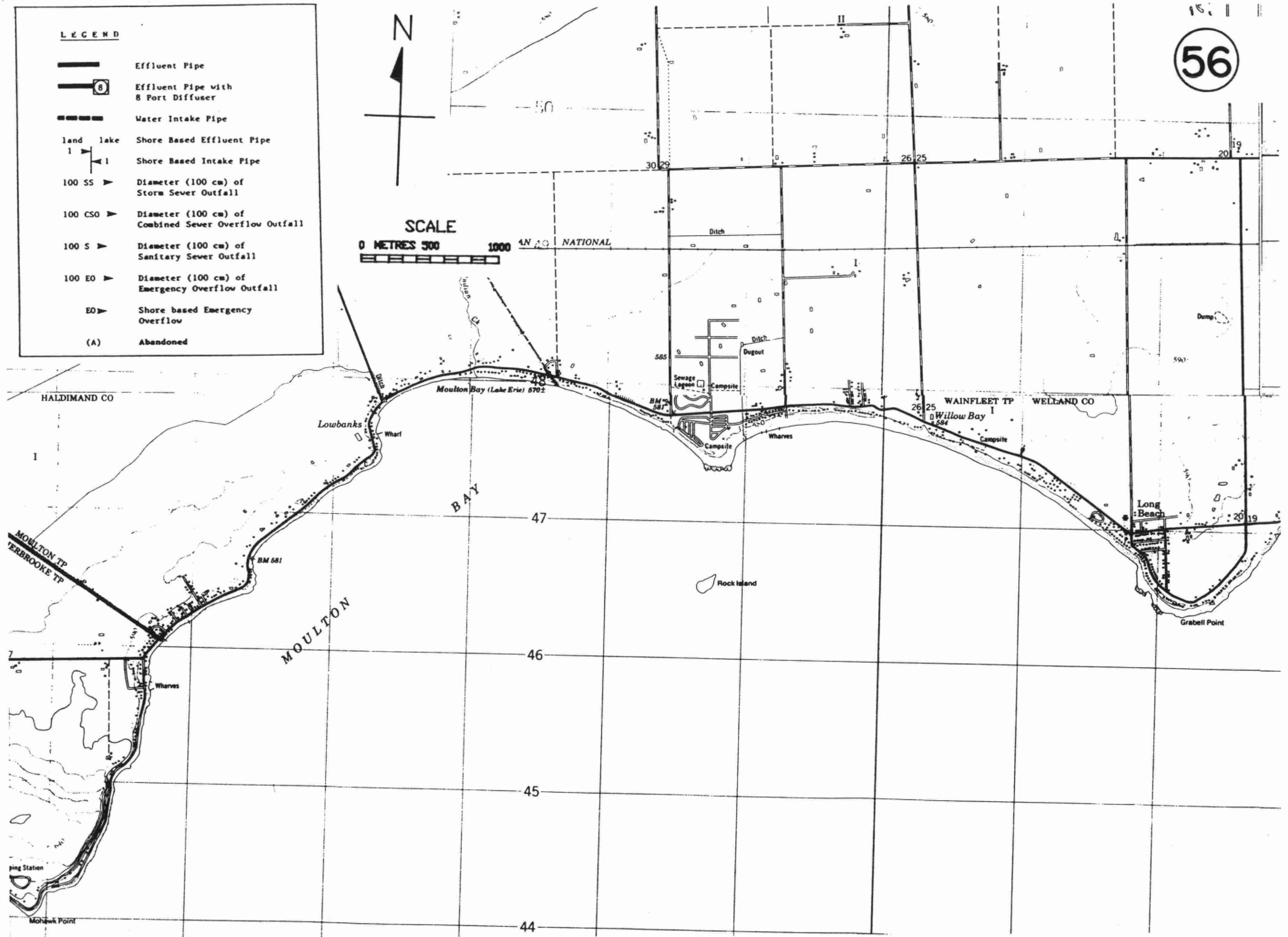
Name	Rock Point Prov. Park						
Intake/Outfall	Intake						
UMIS/IMIS No.							
Structure No.	1						
Map Number	55						
Operating Authority	MNR						
Location	Port Maitland						
Supplier/Receiver	Lake Erie						
Point of Discharge							
Terminal Basin	Lake Erie						
Activity	Park Water Treatment						
Process Type	Physical and Chemical Treatment						
Supply/Discharge Type	Seasonal						
Treatment Type	Filtration, Flocculation Chlorination						
Comments							
Design Flow (1000m3/day)	0.10						
Mean Annual Flow (1000m3/day)	NA						
Pipe length from shore (m)	36.57						
Pipe Diameter (cm)	7.50						
Water Depth at end of pipe (m)	3.96						
Water depth above end of pipe (m)	3.00						
Diffuser							
Number of ports							

LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- land lake Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS Diameter (100 cm) of Storm Sever Outfall
- 100 CSO Diameter (100 cm) of Combined Sever Overflow Outfall
- 100 S Diameter (100 cm) of Sanitary Sever Outfall
- 100 EO Diameter (100 cm) of Emergency Overflow Outfall
- EO Shore based Emergency Overflow
- (A) Abandoned



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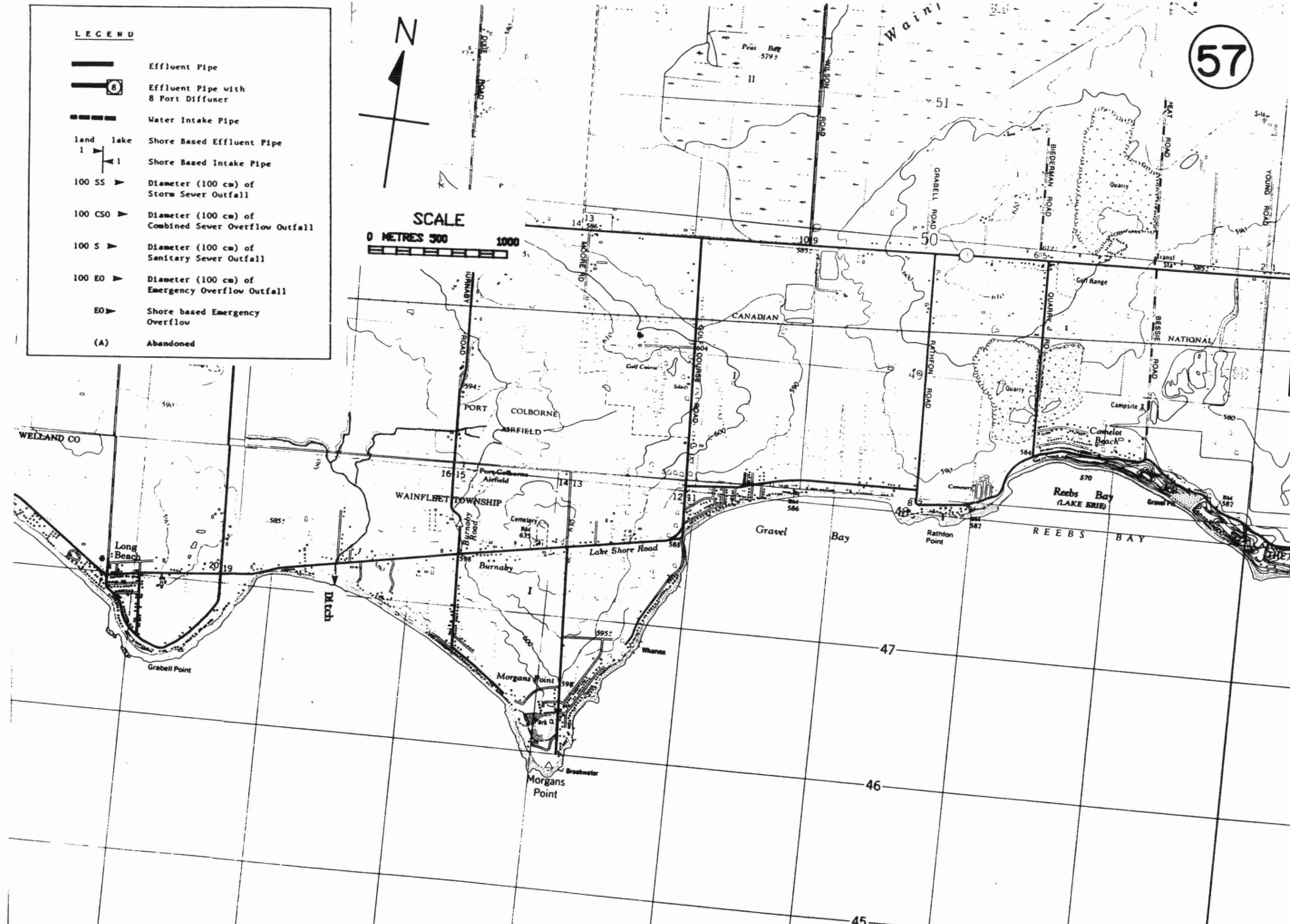


LEGEND

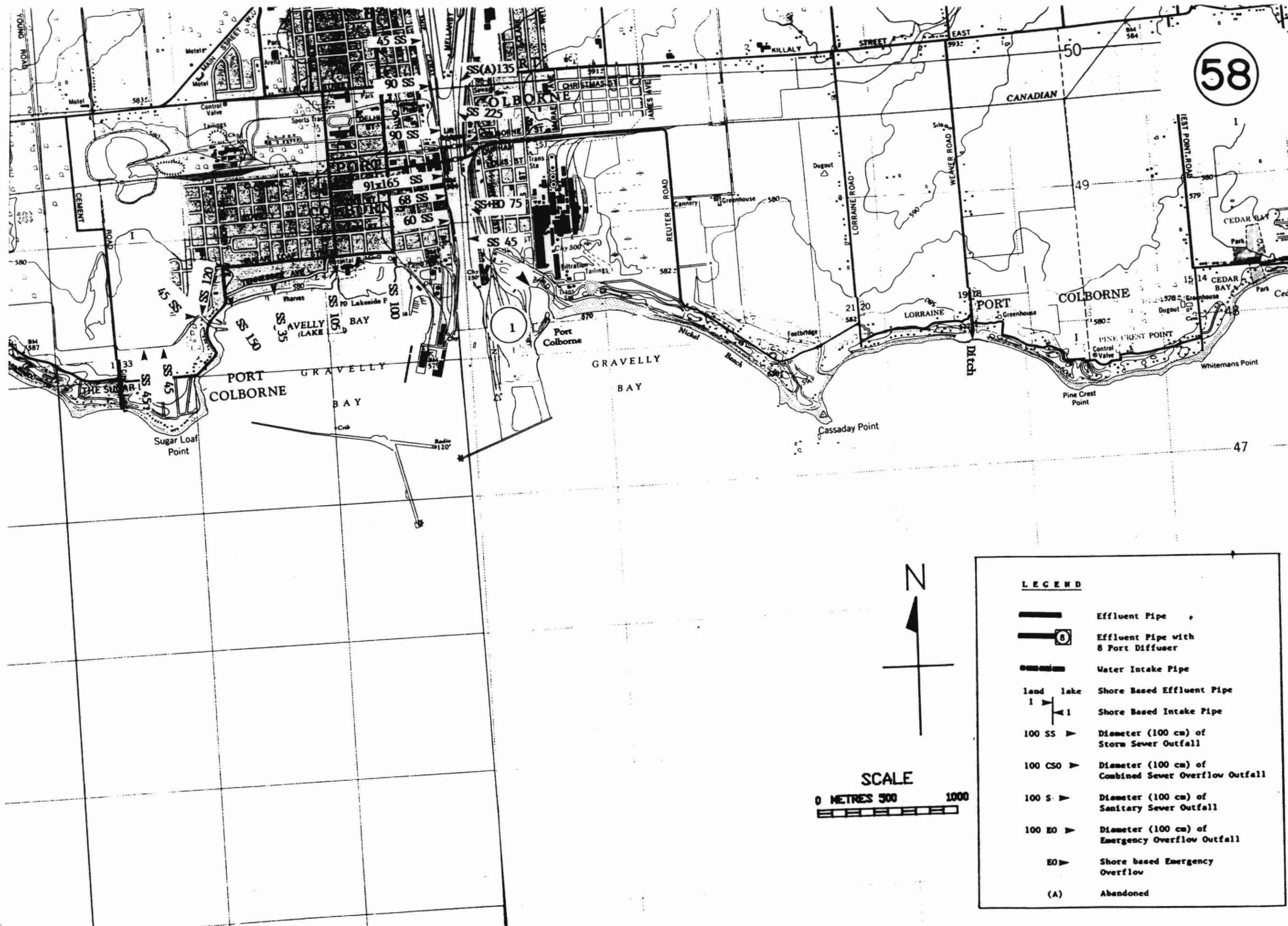
- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- 100 SS > Diameter (100 cm) of Storm Sever Outfall
- 100 CSO > Diameter (100 cm) of Combined Sever Overflow Outfall
- 100 S > Diameter (100 cm) of Sanitary Sever Outfall
- 100 EO > Diameter (100 cm) of Emergency Overflow Outfall
- EO > Shore based Emergency Overflow
- (A) Abandoned

SCALE

0 METRES 500 1000

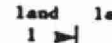


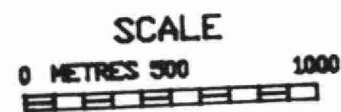
Name	Inco Metals Inc.					
Intake/Outfall	Outfall					
UMIS/INIS No.	0001600105					
Structure No.	1					
Map Number	58					
Operating Authority	IND					
Location	Port Colborne					
Supplier/Receiver	Gravelly Bay					
Point of Discharge	Embayment					
Terminal Basin	Lake Erie					
Activity	Nickel, Cobalt & precious metals production					
Process Type	Electrolytic metals recovery					
Supply/Discharge Type	Continuous					
Treatment Type	NA					
Comments	Discharge via a ditch					
Design Flow (1000m3/day)	18.50					
Mean Annual Flow (1000m3/day)	NA					
Pipe length from shore (m)	NA					
Pipe Diameter (cm)	NA					
Water Depth at end of pipe (m)	NA					
Water depth above end of pipe (m)	NA					
Diffuser	NO					
Number of ports						





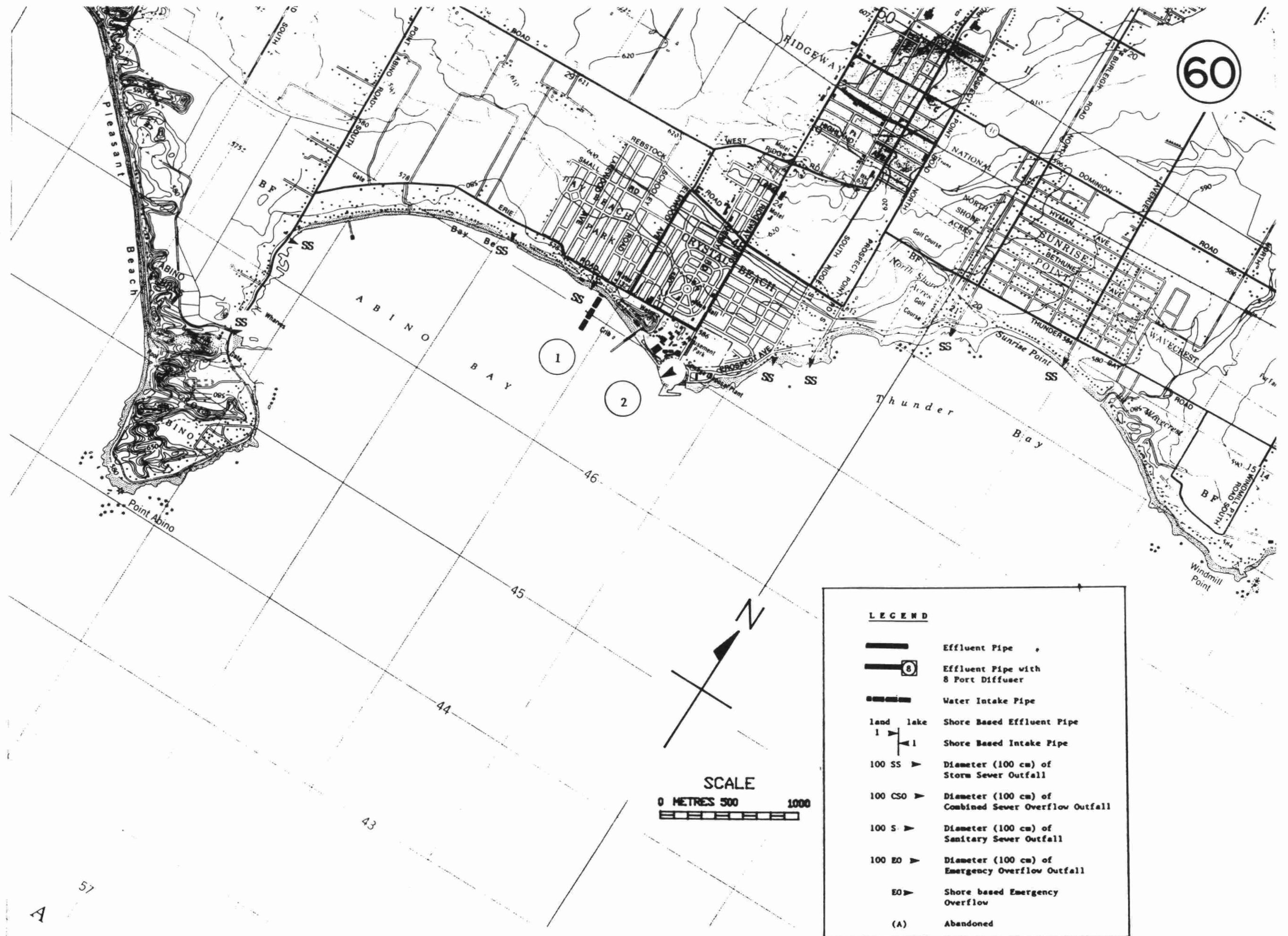
LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  100 SS > Diameter (100 cm) of Storm Sewer Outfall
-  100 CSO > Diameter (100 cm) of Combined Sewer Overflow Outfall
-  100 S > Diameter (100 cm) of Sanitary Sewer Outfall
-  100 EO > Diameter (100 cm) of Emergency Overflow Outfall
-  EO > Shore based Emergency Overflow
-  (A) Abandoned



PT **59**

!Name	!Crystal Beach WTP	!Crystal Beach WPCP	!	!	!	!	!
!Intake/Outfall	!Intake	!Outfall	!	!	!	!	!
!UMIS/IMIS No.	!	!	!	!	!	!	!
!Structure No.	!	!	!	!	!	!	!
!Map Number	!	!	!	!	!	!	!
!Operating Authority	!Niagara RM	!Niagara RM	!	!	!	!	!
!Location	!Crystal Beach	!Crystal Beach	!	!	!	!	!
!Supplier/Receiver	!Lake Erie	!Lake Erie	!	!	!	!	!
!Point of Discharge	!	!Embayment	!	!	!	!	!
!Terminal Basin	!Lake Erie	!Lake Erie	!	!	!	!	!
!Activity	!Municipal Water Treatment	!Municipal Sewage	!	!	!	!	!
		!Treatment	!	!	!	!	!
!Process Type	!	!	!	!	!	!	!
	NA	!Secondary Treatment	!	!	!	!	!
!Supply/Discharge Type	!	!	!	!	!	!	!
!Treatment Type	!	!	!	!	!	!	!
	NA	!Continuous	!	!	!	!	!
	NA	!Extended Aeration	!	!	!	!	!
		!Aerobic Digestion	!	!	!	!	!
!Comments	!Decommissioned in 1980	!	!	!	!	!	!
		!	!	!	!	!	!
!Design Flow (1000m3/day)	!	!	!	!	!	!	!
	NA	3.82	!	!	!	!	!
!Mean Annual Flow (1000m3/day)	!	!	!	!	!	!	!
	NA	4.75	!	!	!	!	!
!Pipe length from shore (m)	!	!	!	!	!	!	!
	305.00	0.00	!	!	!	!	!
!Pipe Diameter (cm)	!	!	!	!	!	!	!
	45.00	120.00	!	!	!	!	!
!Water Depth at end of pipe (m)	!	!	!	!	!	!	!
	4.50	0.00	!	!	!	!	!
!Water depth above end of pipe (m)	!	!	!	!	!	!	!
	4.00	0.00	!	!	!	!	!
!Diffuser	!	!	!	!	!	!	!
		NO	!	!	!	!	!
!Number of ports	!	!	!	!	!	!	!

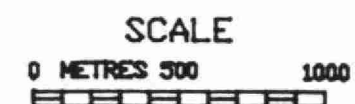


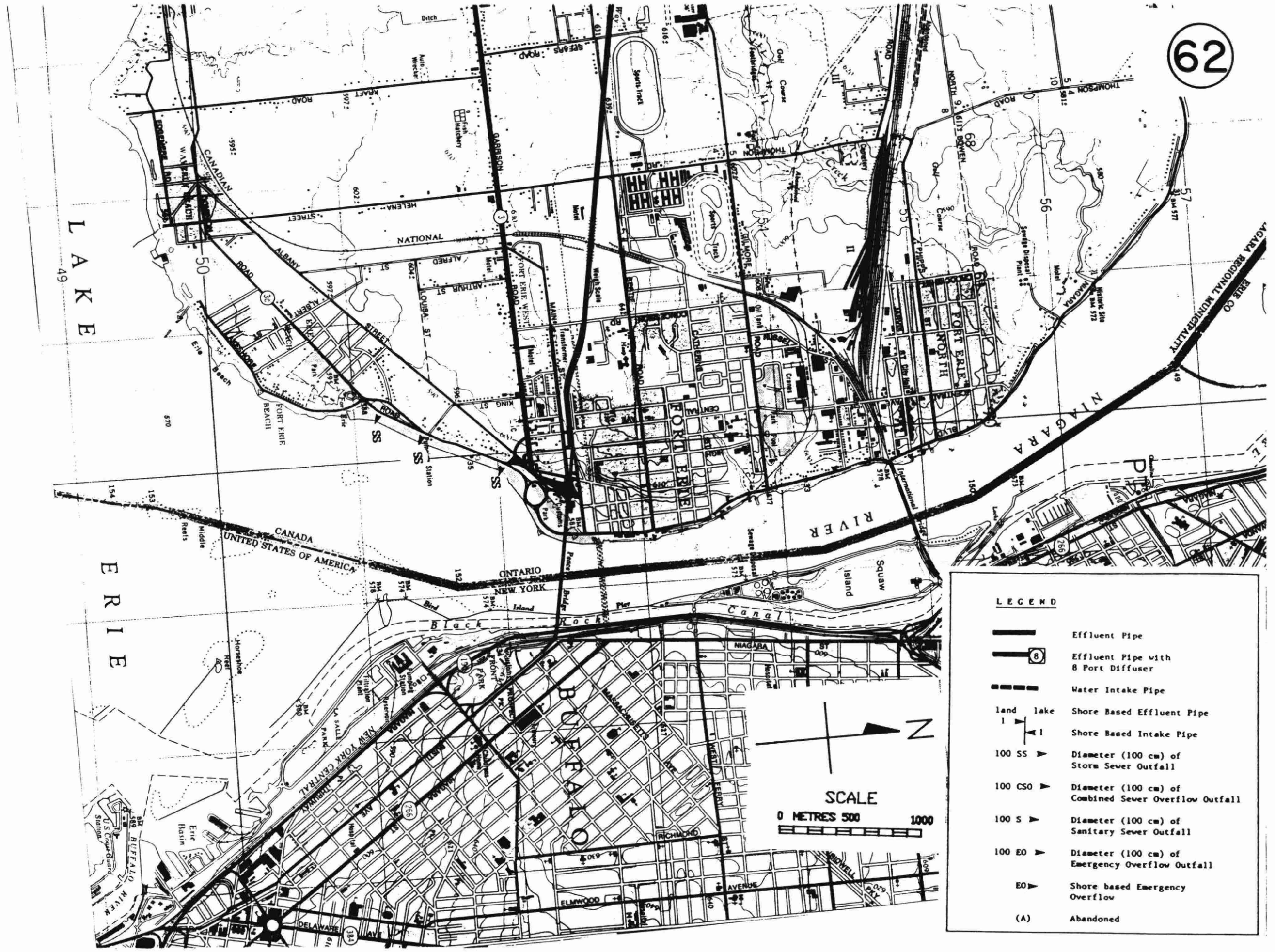
Name	Rosehill WTP						
Intake/Outfall	Intake						
UNIS/INIS No.							
Structure No.	1						
Map Number	61						
Operating Authority	Niagara RM						
Location	Fort Erie						
Supplier/Receiver	Lake Erie						
Point of Discharge							
Terminal Basin	Lake Erie						
Activity	Municipal Water Treatment						
Process Type	Physical and Chemical Treatment						
Supply/Discharge Type	Continuous						
Treatment Type	Screening, Coagulation Flocculation, Filtration Chlorination						
Comments	Commissioned in 1980 replacing Crystal Beach WTP and Fort Erie North and South Pump Stations						
Design Flow (1000m ³ /day)	50.00						
Mean Annual Flow (1000m ³ /day)	15.50						
Pipe length from shore (m)	550.00						
Pipe Diameter (cm)	105.50						
Water Depth at end of pipe (m)	6.00						
Water depth above end of pipe (m)	5.00						
Diffuser							
Number of ports							



LEGEND

-  Effluent Pipe
-  Effluent Pipe with 8 Port Diffuser
-  Water Intake Pipe
-  Shore Based Effluent Pipe
-  Shore Based Intake Pipe
-  Diameter (100 cm) of Storm Sewer Outfall
-  Diameter (100 cm) of Combined Sewer Overflow Outfall
-  Diameter (100 cm) of Sanitary Sewer Outfall
-  Diameter (100 cm) of Emergency Overflow Outfall
-  Shore based Emergency Overflow
-  Abandoned





LEGEND

- Effluent Pipe
- Effluent Pipe with 8 Port Diffuser
- Water Intake Pipe
- Shore Based Effluent Pipe
- Shore Based Intake Pipe
- Diameter (100 cm) of Storm Sewer Outfall
- Diameter (100 cm) of Combined Sewer Overflow Outfall
- Diameter (100 cm) of Sanitary Sewer Outfall
- Diameter (100 cm) of Emergency Overflow Outfall
- Shore based Emergency Overflow
- Abandoned



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